

New records of lecideoid lichens from the Southern Hemisphere

by

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SUMMARY

1. Species are reported from various Southern Hemisphere regions for the first time:
new to the Southern Hemisphere: *Farnoldia similigena*, *Lecidea auriculata*, *Lecidea umbonata* and *Lecidea verruca*;
new to Uganda: *Tremolecia atrata*;
new to South Africa: *Protoparmelia petraeoides*;
new to Bouvetöya: *Carbonea assentiens*;
new to Prince Edward Islands: *Lecidella elaeochroma*;
new to Kerguelen Island: *Lecidella elaeochroma* and *Stephanocyclos henssenianus*;
new to Heard Island: *Fuscidea asbolodes* and *Carbonea assentiens*;
new to New Guinea: *Porpidia albocaerulescens* and *Trapelia coarctata*;
new to Norfolk Island: *Lecanora subcoarctata*;
new to New Zealand: *Carbonea assentiens* (Auckland Is.), *Clauzadeana macula*, *Immersaria athroocarpa*, *Lecidea capensis*, *Lecidea diducens*, *Schaereria fuscocinerea*, *Trapelia involuta*;
new to Tasmania: *Carbonea vorticosa*, *Lecanora subcoarctata*, *Lecidea auriculata*, *Lecidella stigmatea* and *Poeltiaria turgescens*;
new to Macquarie Island: *Lecidella elaeochroma*;
new to South America: *Bellemerea subsorediza*, *Farnoldia similigena*, *Immersaria athroocarpa*, *Lecidea auriculata*, *Lecidea umbonata*, *Lecanora subcoarctata* (Galapagos Is.) and *Lecidea verruca*;
new to Ecuador (Galapagos Islands): *Lecanora subcoarctata*;
new to Colombia: *Tremolecia atrata*;
new to Peru: *Lecidella stigmatea*;
new to Chile: *Immersaria athroocarpa*;
new to Argentina: *Farnoldia similigena*, *Lecidella stigmatea*, *Lecidea auriculata*, *Lecidea kalbii*, *Lecidea umbonata*, *Lecidea verruca*, *Sporastatia testudinea* and *Xenolecia spadicomma*;
new to Juan Fernandez Islands: *Poeltiaria corralensis*;
new to the Falkland Islands: *Lecidea auriculata*;
new to South Georgia: *Carbonea assentiens* and *C. vorticosa*;

- new to South Orkney Islands: *Carbonea assentiens*;
new to South Shetland Islands: *Carbonea assentiens*, *Lecidella stigmatea*;
new to Antarctica (Antarctic Peninsula): *Carbonea assentiens*, *Farnoldia dissipabilis*,
Lecidella stigmatea and *Sporastatia polyspora*.
2. *Lecidea sciatriapha* Hue is identified as a synonym of *Carbonea assentiens* (xanthone-deficient chemotype).
 3. A neotype is chosen for *Lecidea sciatriapha* Hue.

As part of my research on saxicolous lecideoid lichens of cool and cold climates (i.e. of alpine and polar regions), I began in 1982 to monograph the species of the Antarctic floral zone, defined by CABRERA (1971) to include such areas as Juan Fernandez, Patagonia, New Zealand and Tasmania, as well as Antarctica and the subantarctic islands. A preliminary survey, with a key to some 80 species (HERTEL 1984) was followed by floristic reports on species from New Zealand (HERTEL 1985) and from other parts of the Southern Hemisphere (HERTEL 1987b). Further data were included in some taxonomic accounts of specific groups (HERTEL & KNOPH 1985, HERTEL & RAMBOLD 1990). Additional floristic records, including many new and surprising ones, are presented in this paper, based mainly on the revision of usually undetermined herbarium specimens borrowed from various public herbaria (AAS, AD, AK, ANUC, BG, BM, CANU, CBG, CHR, COLO, GZU, H, HO, LPS, M, MEL, NSW, OTA, PC, S, STU, UPS, W, WIS) as well as of private collections (K. Kalb, G. Kantvilas, H. Mayrhofer, V. Wirth). I wish to thank all the owners and keepers of this herbaria for their support.

I wish to thank Prof. Dr Josef POELT (Graz) and Dr Gerhard RAMBOLD (München) for stimulating discussions, DEUTSCHE FORSCHUNGSGEMEINSCHAFT (DFG) for financial support of my research in Antarctic lecideoid lichens, Prof. Dr Christian LEUCKERT (Berlin) for his help in identifying xanthonenes and Mrs Gudrun SCHWARZE, who carefully did all the TLC work. Last but not least I wish to express my sincere thanks to Dr Gintaras KANTVILAS (Hobart) who followed my studies on Tasmanian lichens with great interest and support and kindly corrected the manuscript linguistically.

(1) *Bellemeria subsorediza* (Lynge) R. Sant.

SANTESSON in MOBERG, Lich. sel. exs. Upsal., no. 30 (1988). - *Aspicilia subsorediza* (Lynge) R. Sant. in VEZDA, Lich. sel. exs., no. 1434 (1976); GALLOWAY, Flora New Zealand Lich. : 23 (1985) - *Lecidea subsorediza* Lynge in DAHL, LYNGE & SCHOLANDER, Skrift. Svalbard Ishavet 70: 22 (1937).

Argentina: *Tierra del Fuego*: Sierra Alvear, the southern slope, above Las Cotorras (about 20 km ENE of Ushuaia), on exposed rocks in the alpine region, 550 m, 7 February 1940, R. SANTESSON 7228 (S, with *Tremolecia atrata*). - Montes Martial bei Ushuaia, oberhalb Acrosilla, Silikatfelsen im Krummholzbereich, S- und SE-Hänge, 700-1000 m, 17. Januar 1989, J. POELT (GZU).

This sorediate species, known from alpine and arctic areas in the Northern Hemisphere, is almost constantly sterile and so probably often overlooked. All other Southern Hemisphere records are from New Zealand only (GALLOWAY 1985).

(2) *Carbonea assentiens* (Nyl.) Hertel

HERTEL, Lecideaceae exs., no. 103 (1984); HERTEL, Beih. Nova Hedwigia 79: 442-443 (1984); HERTEL, Mitt. Bot. München 23: 323 (1987). - *Lecidea assentiens* Nyl. in CROMBIE, Journ. Bot. (London) 13: 334 (1875).

First described from Kerguelen Island, this whitish to pale yellowish lichen is widespread and locally common in subantarctic and maritime Antarctic regions. All individuals contain atranorin (usually with chloroatranorin) and zeorin. However, at least some of the collections from Kerguelen Island and the Prince Edward Islands (where the species is rather common) usually have a more intensely yellowish thallus and also contain two unidentified xanthonones (O-methyldichloronorlichexanthonone and a O-methylmonochloronorlichexanthonone according to Ch. LEUCKERT; see HERTEL 1984: 473). These additional xanthonones are lacking constantly in the populations of the maritime Antarctic islands (Bouvet Island, Heard Island, South Orkney Islands, South Shetland Islands) and of the Antarctic Peninsula, where this taxon seems to be one of the most common lecideoid crustose lichen on non-calcareous rocks.

Carbonea assentiens and *C. phaeostoma* seem not to belong to the genus *Carbonea* as circumscribed recently by RAMBOLD (1989). However, because I hesitate to include these two species both in the genus *Lecanora* or in the genus *Adelolecia* (the apothecia of *A. pilati* (Hepp) Hertel & Hafellner as well as those of *C. phaeostoma* contain the anthraquinone 2-chloroemodin), or to create a new genus without additional studies on related groups, I provisionally retain these two species within the genus *Carbonea*.

The distribution of the chemotypes in *Carbonea assentiens* follows the usual pattern for various Northern Hemisphere lichens, where the least complex (most depauperated) chemotypes are restricted to regions with the coldest climates (Arctic, alpine belts of mountain ranges). These xanthone-deficient populations of *Carbonea assentiens* are regarded as such a lichen acid deficient race ("0-strains", LEUCKERT & POELT 1978), which we do not accept as a distinct taxon.

(a) the xanthone-containing chemotype

Prince Edward Islands: *Prince Edward Island:* Vicinity of Kent Crater, 46° 37' - 46° 38' S, 37° 53'-55' E, loose pebbles on moist ground, c. 130 m, 1 May 1982, H. HERTEL 24309 (M), 24348 (M), 24350 (M), 24356 (M).

Marion Island: Skua Ridge, 46° 52' S, 37° 51' E, 60-70 m, 26 April 1982, H. HERTEL 24221 (M), 24226 (M). - Transvaal Cove, NW of Albatross Lakes, 46° 52' S, 37° 51' E, 50 m, 9 May 1982, H. HERTEL 24542b (M). At Albatross Lakes, 50 m, 9 May 1982, H. HERTEL 24532 (M), 24542a (M). - Long Ridge, between Long Ridge South (lake) and Sea Elephant Bay, c. 46° 52' S, 37° 48' E, 430 m, 23 April 1982, HERTEL 24136 (M). - Western coast, Swartkop Point, 46° 56' S, 37° 35' E, 70 m, 17 May 1982, H. HERTEL 24719 (M). - Along Van den Boogaard River, from foot of Tafelberg to mouth of Rockhopper Bay, 46° 53' S, 37° 50' E, 60 m, 3 May 1982, H. HERTEL 24396a (M).

(b) the xanthone-deficient chemotype

Synonym: *Lecidea sciatropha* Hue, Deux Expédit. Antarct. Franç.: 110-112 (1915); ZAHLBRUCKNER, Catal. Lich. Univ. 3: 686 no. 6711 (1925) [*"sciatropha"*].

Type: *Antarctic Peninsula:* "Ilot Goudier, Port Lockroy, près de l'île Wiencke, chenal de Rosen, sur les rochers (diorites), dans les endroits un peu abrités, III^e excursion, no. 86, le 28 décembre 1908" (no material was detectable in PC).

Neotype: *Antarctic Peninsula:* Wiencke Island, Port Lockroy, Goudier Islet, 64° 50' S, 63° 31' W, halfway up island, 6 m alt., on N facing vertical granodiorite rock (confluent patches diffusely covering an extensive area, 14 December 1944, I.M. LAMB, Operation *Tabarin*, no. 1883 (BM)).

Auckland Islands: Frenchs Island: Off Crozier Point, in grey zone at h.w.m., 29 December 1962, P.W. JAMES 763 (BM).

South Georgia: Bird Island: SW slopes of Roché Peak (GR 032 155), on dry schistose rock facing SW, exposed, 12 November 1971, D.C. LINDSAY 3062 (AAS). - Right Whale Bay, behind N end of Binder Bay (GR 054 154), on dry E-facing cliff, c. 30 m, 4 January 1972, D.C. LINDSAY 3801 (AAS). - S end of Binder Bay (GR 054 154), on E facing nitrogenous outcrop, 5 m, 3 January 1972, D.C. LINDSAY 3771 (AAS). - Royal Bay, near waterfall on SW side of Whale Valley (GR 158 098), on dry non-nitrogenous boulder, 30 m, 17 January 1972, D.C. LINDSAY 3948 (AAS). - South shore of Larson Harbour (GR 163 062), on bird-perching rock by shore, 3 m, 30 December 1971, D.C. LINDSAY 3733 (AAS). - North side of Wirik Bay (GR 173 073), on rock on dry south-facing non-nitrogenous scree slope, 100 m, 27 December 1971, D.C. LINDSAY 3669 (AAS).

Heard Island: Steep hill between Rogers Head, Corinthian Bay, West Beach and the foot of the glaciers from Big Ben (Kaiser Wilhelm Peak), 53° 05' S, 73° 24' E, 28 November - 2 December 1929, B.A.N.Z.A.R.E. no. B 140-15 (M, fragm. ex hb. C.W. Dodge; det. C.W. DODGE as "*Lecidea auberti* B. de Lesd."); no. B 140-22 (AD, det. C.W. DODGE as "*Lecidea subassentiens* Nyl."). - Cape Laurens, Laurens Peninsula, scree slope facing Atlas Cove, c. 100 m SE of waterfall close to Vanhoffen Bluff, 60-120 m, very protected face, constant moisture from waterfall, January 1963, A. GILCHRIST 19 (MEL 1026848). - Mt Olsen, Laurens Peninsula, on terrace of black sand and rock, 210-250 m, January 1963, A. GILCHRIST 33 (MEL 1026861). - Mt Andree, in hollows between mounds of *Azorella selago*, sheltered area, 100-250 m, January 1963, A. GILCHRIST 2 (MEL 1026852), A. GILCHRIST 5-7 (MEL 1026844). - Mt Drygalski, NE face, 120-150 m, wind protected, constantly moist area, January 1963, A. GILCHRIST 32 (MEL 1026846).

Bouvetøya: Nunatak ridge E of Rustadkollen, dry basalt slab scree facing E, 54° 25' S, 3° 18' E, 1 January 1979, T. ENGELSKJØN 340 (BG, M).

South Orkney Islands: Laurie Island: A small plateau on the N.W. seaward edge of Cape Geddes, 60° 42' S, 44° 35' W, steep slopes down to Brown's Bay, 50 m, 8 April 1946, Falkland Islands Dependencies Survey, no. C3-1001 p.pte. (BM).

Coronation Island: Saunders Point, 0-9 m, 8 October 1950, W.J.L. SLADEN H612/40 (BM).

Lynch Island: On rock fragment near gull rockery, 60° 40' S, 45° 38' W, 10 m, 16 March 1966, D.C. LINDSAY 978 (AAS).

Signy Island: 90 m S of hill, 30 m alt., 60° 42' S, 45° 37' W, 13 January 1948, P.E. BIGGS, Falkland Islands Dependencies Survey, no. H81-1 (BM). - Marble Knolls, Three Lakes Valley, 60° 42' S, 45° 37' W, 29 October 1966, D.C. LINDSAY 1345 (AAS).

South Shetland Islands: King George Island: Level top of cliffs N. of Base Hutt, Martel Inlet, 62° 03' S, 58° 23' W, 7 m, 1 March 1947, D. NICHOLSON & A. REECE, Falkland Islands Dependencies Survey, no. G36-2 (BM). - Admiralty Bay area, creeping slopes above Paradise Cove; on screes on southern slope, in mass, 80 m, volcanic rock, 26 January 1980, R. OCHYRA 1228/80 (M). - Admiralty Bay area, Smok Hill in Martel Inlet, 5 m, on slightly moist andesite rocks, 18 February 1980, R. OCHYRA 2062/80 (M). - Admiralty Bay area, Agat Point S of Sphinx Hill, 62° 11' 30" S, 58° 26' W, 15 m, on basalt rocks enriched with nitrogen in nestage of sea gulls, 8 January 1980, R. OCHYRA 365/80 (H). - Admiralty Bay area, Demay Point, on boulders on scree, northern slope, 40 m, 27 January 1980, R. OCHYRA 1364/80 (M). - N side of Barton Peninsula, 62° 13' S, 58° 44' W, 3 m, on pebbles of raised beach, 22 January 1966, D.C. LINDSAY 746 (AAS), 751 (AAS).

Penguin Island: Northern tip of the island, 62° 05' S, 57° 55' W, on N facing volcanic rock, 10 m, 27 January 1966, D.C. LINDSAY 804 (AAS), 807 (AAS).

Robert Island: Coppermine Cove, 62° 22' S, 59° 45' W, 60 m, dry N.E. slopes with good shelter, 31 December 1934, "Discovery" Expedition 1934-35, no. 1485d (BM). - Edwards Point, 62° 29' S, 59° 30' W, 10 m, ridge of S-facing raised beach, 5 January 1966, D.C. LINDSAY 613 (AAS).

Deception Island: From area of small ash with a few stones, 6 January 1936, British Graham Land ("Penola") Expedition 1934-37, no. 1351a (BM - no lichen products). - 16 January 1936, British Graham Land ("Penola") Expedition 1934-37, no. 1381 (BM). - 5 February 1945, E.H. BUCK, Operation *Tabarin*, no. 2358 (BM). -

Antarctica: East Graham Land: Trinity Peninsula, Hope Bay, summit of Pyramid Peak, 63° 26'S, 57° 01'W, 575 m, 30 April 1945, I.M. LAMB, Operation *Tabarin*, no. D-2420 (BM, neben *Buellia illaetabilis* Lamb, *Acarospora chlorophana* (Wahlenb.) Massal., *Miriquidica* spec.).

West Graham Land: Goudier Islet (see neotype). - Doumer Island, 64° 51' S, 63° 35' W, rocky outcrop on N. side, c. 30 m, N. exposure, on granodiorite rocks, 12 December 1944, I.M. LAMB, Operation *Tabarin*, no. 1904 (BM). - Argentine Islands, Galindez Island, 65° 15' S, 64° 15' W, from nearly vertical low sea cliff, 2-8 m, 31 March 1935, British Graham Land ("Penola") Expedition 1934-37, no. 1116nn (BM). - Berthelot Islands, Green Island, 65° 19' S, 68° 15' W, from N facing inland cliff, 18 March 1935, British Graham Land ("Penola") Expedition 1934-37, no. 1081w (BM). -

(3) *Carbonea phaeostoma* (Nyl.) Hertel

HERTEL, Beih. Nova Hedwigia 79: 443-444 (1984); HERTEL, Mitt. Bot. München 23: 324-325 (1987). - *Lecidea phaeostoma* Nyl. in CROMBIE, Journ. Bot. (London) 13: 334 (1875)

Heard Island: Mt Andree, in hollows between mounds of *Azorella selago*, in a sheltered area, 100-250 m, January 1963, A. GILCHRIST 5-7 (MEL 1026844, a few apothecia beside *Carbonea assentiens*).

Macquarie Island: Bauer Bay, coastal rocks, 2-3 m, 10 January 1972, R. HNATIUK 11712 (MEL 1027283), 11714 (MEL 1027297), 11725 (MEL 1027300). - Approx. half way along the W side of Lake Strahan (Gratitude Lake), 180 m, pebbles embedded in moss, 4 February 1964, R. FILSON (5935) & J. PHILLIPS (MEL 1041279). - North Head of Macquarie Island, on exposed rock in a westerly aspect, 15 January 1964, I.M. LAMB, hb. Filson no. 5724 (MEL 1048265). - W of Aurora Cave, coastal rock, 21 January 1972, R. HNATIUK 11812 (MEL 1027262, ill treated specimen with almost pure black discs).

All the specimens contain atranorin and zeorin in the thallus, and 2-chloroemodin (by TLC) in those apothecia in which the reddish pruina of the epihymenium is well developed.

(4) *Carbonea vitellinaria* (Nyl.) Hertel

HERTEL, Mitt. Bot. München 19: 442 (1983) - *Lecidea vitellinaria* Nyl., Bot. Notiser: 177 (1852) - *Nesolechia vitellinaria* (Nyl.) Rehm in RABENHORST, Kryptfl. Deutschland, 2. Aufl. 1 (3): 318 (1890).

New Zealand: Westland: Tasman Valley, ca. 43° 07' S, 170° 13' E, on rock outcrop on ridge near Ball Hut, 8 April 1966, B.A. FINERAN 2325 (CANU) and 2330 (CANU).

(5) *Carbonea vorticosa* (Flk.) Hertel

HERTEL, Mitt. Bot. München 19: 442 (1983) and 21: 306-308 (1985); HERTEL, Beih. Nova Hedwigia 79: 444-445 (1985); RAMBOLD, Biblioth. Lichenol. 34: 83 (1989) - *Lecidea vorticosa* (Flk.) Koerb., Syst. Lich. Germ.: 251-252 (1855).

New Zealand: *Westland*: Mt Haast, Col between West and Middle Peaks, 2955 m, 10 January 1967, R.G. CUNNINGHAME (CANU, hb. FINERAN 2482, cryptothalline thallus with a few apothecia only).

Otago: St. Bathans Range, 1675 m, 10 January 1972, C.D. MEURK (BM).

Tasmania: Mt Wellington, on dolerite, alpine rocks, 1260 m, 10 February 1984, P. JAMES & G. KANTVILAS 301/84 (hb. Kantvilas, a few apothecia associated with *Tremolecia atrata*).

South Georgia: About 10-15 m below "Summit 706 m" due E of Swinhoe Peak above Hamburg Glacier, on block scree on S-facing slope, probably never receiving direct sunshine, 6 November 1976, R.I. LEWIS SMITH 2526 (AAS).

Antarctica: *Dronning Maud Land*: Skigården, h.1651, granite, 1 February 1985, T. ENGEKSKJØN s.n. (BG).

(6) *Clauzadeana macula* (Th. Tayl.) Coppins & Rambold

in RAMBOLD, *Biblioth. Lichenol.* 34: 85 (1989) - *Lecidea macula* Th. Tayl. in MACKAY, *Flora Hibernica* 2: 115 (1836).

New Zealand: *Canterbury*: Phipps Peak, summit, 1905, on rock, near Arthur Pass, ca. 42° 54' S, 171° E, 5 March 1966, B.A. FINERAN 2275 (CANU, associated with *Lecidea lapicida* (Ach.) Ach.).

(7) *Farnoldia* cf. *micropsis* (Massal.) Hertel

HERTEL, *Mitt. Bot. München* 19: 443 (1983) - *Lecidea micropsis* Massal., *Atti I.R. Istit. Veneto*, ser.3, 2: 368 (1856). - *Tremolecia nivalis* (Anzi) Hertel, *Khumbu Himal* 6 (3): 354-356 (1977) - *Lecidea rhaetica* Hepp ex Th.Fr., *Lich. Arctoi* 209 (1860); HERTEL, *Beih. Nova Hedwigia* 24: 92-96 (1967).

South Shetland Islands: *Deception Island*: From area of small ash with a few stones, rock with traces of CaCO₃ (HCl weakly positive), 6 January 1936, British Graham Land ("Penola") Expedition 1934-37, no. 1251a (BM), 1351i (BM). This specimen is most probably conspecific with one from Greenwich Island which was determined by HERTEL (1984 p. 430) as *Farnoldia dissipabilis* (Nyl.) Hertel. *Farnoldia micropsis* and *F. dissipabilis* are very closely related. They are identical in ascocarp characters and they differ in their highly variable shape and the colour of the thallus areoles. More material from Antarctic regions is necessary for a better understanding of the variability of this species.

Half Moon Island: Hill south of the huts, 62° 35' S, 59° 55' W, on basaltic rock facing WNW, 30 m, 5 January 1966, D.C. LINDSAY 600 (AAS, with *Lecidella stigmataea*). This specimen is provisionally included under *Farnoldia micropsis* for I am not absolutely sure whether it represents a distinct taxon. Its epilithic thallus is poorly developed (small isolated white areolae, 0.1-0.3 mm in diam., 0.1 mm thick) and is I-negative. The very glossy black apothecia are small (up to 0.55 mm in diam.) with a distinct margin only when young. Larger apothecia have a shallow sunken zone in the centre of the discs. The hymenium is 70-80 µm, spores 16-19-23 x 8-9-10 µm. The substrate give no CO₂-reaction with HCl, however basalt often bears a slightly calciphilous lichen flora.

Antarctica: *Antarctic Peninsula*: West Graham Land, Port Lockroy, Goudier Islet, 64° 50' S, 63° 31' W, on limpet shells among loose stones on ground until recently snow covered, 8 m, 22 December 1944, I.M. LAMB, Operation *Tabarin*, no. 2080 (BM). TLC: no lichen acids. A very remarkable record of this pioneer lichen, hitherto known only from holarctic regions (mapped in HERTEL, *Mitt. Bot. München* 12: 135, 1975). This calciphilous lichen occurs in a habitat which is not covered by snow for only a few weeks each year. It colonizes shells laying on the ground in an area completely formed by acid

rock. This record demonstrates the efficiency of long range dispersal by ascospores.

(8) *Farnoldia similigena* (Nyl.) Hertel

HERTEL, Mitt. Bot. München 19: 433 (1983) - *Lecidea similigena* Nyl., Flora 64: 451 (1881); HERTEL, Herzogia 1: 328 (1969) - *Lecidea subrhaetica* Arnold ex LETTAU, Feddes Repert. 56: 214 (1954); HERTEL, Beih. Nova Hedwigia 24: 97-98 (1967).

Argentina: Tierra del Fuego: Dept. Ushuaia, Montes Martial bei Ushuaia oberhalb Acrosilla, Silikatfelsen im Krummholzbereich, S- und SE-Hänge, 700-1000 m, über kalkhaltigem Schiefer, 17. Januar 1989, J. POELT (GZU, associated with *Lecidea umbonata*).

This well-developed specimen has a whitish thallus composed of dispersed, plane, more or less isolated areolae, 0.2-0.7 mm in diam. The medulla reacts I+ intensely violet; apothecia are up to 0.7 mm in diam., black, plane, with a distinct margin; hymenium is 55-65 μm ; subhymenium is very pale blue-green; hypothecium is brown black. Spores 11-15.0-19 x 5.0-5.6-7.0 μm .

The small apothecia, the very dark hypothecium and rather low hymenium are remarkable.

(9) *Fuscidea asbolodes* (Nyl.) Hertel & V. Wirth

in HERTEL, Beih. Nova Hedwigia 79: 454 (1984); HERTEL, Mitt. Bot. München 21: 308-309 (1985) et 23: 325 (1987) - *Lecidea asbolodes* Nyl. in Crombie, Journ. Bot. (London) 14: 21 (1876).

Heard Island: South Barrier Plateau, on decayed lava flow, facing E, sheltered from W, 3 February 1965, J. CRICK (MEL 1020728, beside *Carbonea phaeostoma* and *Tephromela atra* agg.).

Auckland Islands: Auckland Island: Summit of Mt Eden, 420 m, 31 December 1962, P.W. JAMES 833 (BM).

Macquarie Island: Top of Gadgets Gully, in moist position near creek, 11 April 1972, R. WATERHOUSE A98 (MEL 1020915, beside *Lecidea charadroides*). - Hill on E side of Lake Prior, on rocks in an easterly aspect at an altitude of 275 m at station 6, 23 January 1964, N. BARRET & R. FILSON 5791 (MEL 1048264). - Mouth of Flat Creek on side of rock stack about 20-40 m NE of beach, 6 m, 18 November 1966, K. SIMPSON E25a (MEL 1000260). - NE side of Lake Major, in westerly aspect at Station 10, 240 m, 19 February 1964, R. FILSON 6165 (MEL 1048289).

(10) *Immersaria athrocarpa* (Ach.) Rambold & Pietschmann

in RAMBOLD, Biblioth. Lichenol. 34: 239 (1989) - *Lecidea athrocarpa* (Ach.) Ach. Method. Lich. 41-42 (1803); HERTEL, Khumbu Himal 6(3): 228-230 (1977) - *Porpidia athrocarpa* (Ach.) Hertel & Rambold in Hertel, Lecideac. exs., fasc. VIII, 8, no. 156 (1985) - *Amygdalaria athrocarpa* (Ach.) Esnault & Roux, Anal. Jard. Bot. Madrid 44 (2): 221-225 (1987) [comb. inval.].

Chile: Prov. Malleco: Cordillera de Nahuelbota, Los Alpes, Fundo Solano (near southern boundary of the province), on granite rocks in forest, 1200 m, 13 January 1958, W.J. EYERDAM 10764 (COLO L-44418).

New Zealand: Canterbury: Kirkliston Range, 1670-1830 m, 25 March 1978, D.J. GALLOWAY s.n. (BM). - Foggy Peak, 64 km WNW of Christchurch, 43° 17' S, 171° 45' E, 1972, G.C. BRATT 72/1903 (HO 38880). - Foggy Peak, 1200-1500 m, 25 January 1985, H. MAYRHOFER 7475 (GZU). - Mt Peel, summit, 43° 51' S, 171° 09' E, 1700-1700 m, 16 January 1985, H. HERTEL 29521 (M).

Otago: Flagstaff Hill near Dunedin, rock outcrops (basalt), near summit, 45° 50' S, 170° 28' E, ± 650 m, 1 February 1985, H. HERTEL 30105 (M). - Old Man Range, summit plateau, between Hyde Rock and Obelisk, at foot of "tor 5475", with *Cetraria delisei*, 1660 m, 3 February 1985, H. HERTEL 30322 (M).

(11) *Lecanora physciella* (Darb.) Hertel

HERTEL, Beih. Nova Hedwigia 79: 446-447 (1984); HERTEL, Mitt. Bot. München 23: 326 (1987). - *Lecidea physciella* Darb., Brit. Antarct. (Terra Nova) Exped. Nat. Hist. Rep., Botany 3: 33-35 (1923).

Antarctica: Victoria-Land: Cape Hallett, on volcanic rock, 72° 18' S, 170° 18' E, 1969, O.L. LANGE (M). - Geike Land (S. Victoria Land), Spring 1900, Southern Cross Expedition, C.E. BROCHGREVINK (BM).

East Graham Land: Trinity Peninsula, Hope Bay, summit of Pyramid Peak, 63° 26' S, 57° 01' W, 575 m, 30 April 1945, I.M. LAMB, Operation *Tabarin*, no. 2413 (BM), no. D-2413 (BM), no. D-2416 (BM), no. D-2422 (BM). - Hope Bay, low hill on E. side of bay, 100 m, on loose stone, 16 April 1945, I.M. LAMB, Operation *Tabarin*, no. 2389 (BM). - Hope Bay, from coast E of Mt Bransfield, 190 m, 15 October 1946, A. REECE, Falkland Islands Dependencies Survey no. D361-2 (BM).

West Graham Land: Port Lockroy, Goudier Islet, 64° 50' S, 63° 31' W, not far from summit of island, 7 m, 17 March 1944, I.M. LAMB, Operation *Tabarin*, no. 1163 (BM). - Wiencke Island, N buttress of Noble Peak, 64° 48' S, 63° 25' W, 455 m, on loose stones at base of N facing rock face, 20 November 1944, I.M. LAMB, Operation *Tabarin*, no. 1799 (BM). - Wiencke Island, Snow Comb Hill, 370 m, on N facing rocky slope, 8 October 1944, I.M. LAMB, Operation *Tabarin*, no. 1328 (BM). - Marguerite Bay, Debenham Islands, Barbara Island, 68° 08' S, 67° 07' W, 5 January 1937, British Graham Land ("*Penola*") Expedition 1934-37, no. 1542e (BM), no. 1542g (BM). - Debenham Islands: Barry Island, 68° 08' S, 67° 07' W, 26 November 1936, British Graham Land ("*Penola*") Expedition 1934-37, no. 1498a (BM). - Doumer Island, 64° 51' S, 63° 35' W, rocky outcrop on N. side, c. 30 m, N. exposure, on granodiorite rocks, 12 December 1944, I.M. LAMB, Operation *Tabarin*, no. 1912 (BM).

Most of the specimens were tested by TLC. They uniformly contain usnic acid, sometimes accompanied by an unidentified fatty acid.

Lecanora physciella seems to be truly endemic to the Antarctic continent, confined to the Continental Antarctic region, reaching and extending only into the southern and eastern parts of the Antarctic Peninsula.

(12) *Lecanora subcoarctata* (Knight) Hertel

HERTEL, Beih. Nova Hedwigia 79: 448 (1984); HERTEL, Mitt. Bot. München 21: 319-321 (1985); RAMBOLD, Biblioth. Lichenol. 34: 319 (1989). - *Lecidea subcoarctata* Knight, Transact. Proceed. New Zeal. Inst. 8: 316-317 (1876); GALLOWAY, Flora New Zealand Lich.: 238 (1985).

Ecuador, Galapagos Islands: *Isla Santa Cruz* (Indefatigable I.): vicinity of Academy Bay, aerohaline belt along shore E of CDRS, no date, W.A. WEBER (COLO L-41000).

Norfolk Island: [without exact locality], 28° 00' S, 168° 00' E, 24-27 August 1975, J. & T. GILBERT, hb. BRATT 75/934 (HO 48186).

New Zealand: North Auckland: Thames Co., Slipper Island, Watchman Rock, on maritime rocks, August 1973, B.W. & G.C. HAYWARD s.n. (AK 161262). - 17.5 km ENE of Warkworth, Tawharanui Peninsula, 3.5 km W of Tokatu Pt., 36° 22' S, 174° 50' E, on sea-shore rocks, 25 May 1981, L. TIBELL 13191 (UPS, beside *Tylothallia pahiensis*).

Tasmania: Furneaux Group, Bass Strait: Babel Island, SE point of the island, on granite outcrop, 12 m, 1 February 1967, J. WHINRAY (MEL 28275). - Little Goose Island, South Coast, c. 60 m from the tip of the southeastern point, 1.8 m, on coastal granite and small boulders, c. 10 m in from high water level, 18 February 1978, J. WHINRAY 972 (MEL 1025639).

Main Island: Sister Bay, c. 11 km S of Dover, 43° 27' S, 147° 01' E, on dolerite, exposed but out of normal wave area, 3 m, 6 July 1968, G.C. BRATT 68/518 (HO 63753). - De Witt Island, on rocks, littoral in salt spray zone, 28 January 1977, J.A. ELIX 3342 (ANUC).

Lecanora subcoarctata was hitherto known only from New Zealand.

(13) *Lecidea atromorio* Knight

HERTEL, Mitt. Bot. München, 21: 321-322 (1985); RAMBOLD, Biblioth. Lichenol. 34: 165 (1989).

New Zealand: Canterbury: Lees Valley road, 7 km N of Oxford, on greywacke rocks in open bush, 460 m, 28 May 1980, J.A. ELIX 8306 (ANUC). - Rangitata Valley, Boundary Stream, 43° 47' S, 171° 11'30" E, little river gorge, ± 550 m, 17 January 1985, H. HERTEL 29650 (M). - Cass, on boulders of greywacke in *Discaria-Festuca* tussock country above the Biological Station, 8 January 1927, G.E. & Greta DU RIETZ 1454:6 (UPS), 1454:7 (UPS). - Bank's Peninsula, Kennedy's Bush, 43° 39' S, 172° 36' E, ± 200 m, hill with siliceous outcrops, 1 November 1981, V. WIRTH (10282) & L. GREENFIELD (STU). - Mt Peel, Lynn Stream Valley, Long Speer above Acland's hut, 43° 50'30" S, 171° 11' E, 530 m, 15 January 1985, H. HERTEL 29437 (M); 770 m, H. HERTEL 29455 (M). - Lake Pukaki Hotel, on non-calcareous boulders in *Festuca novae-zelandiae*-tussock at the road side, 12 March 1927, G.E. & G. DU RIETZ 2094b (UPS, beside *Rimularia psephota*).

Otago: Flagstaff Hill near Dunedin, 45° 50' S, 170° 28' E, basaltic rocks near summit, 650 m, with *Lecanora blanda*, 1 February 1985, H. HERTEL (30117) & H. MAYRHOFER (M). - Abbott's Hill, Dunedin, J.S. THOMSON no. 978 (OTA 029455, CHR 160438, both det. ZAHLBRUCKNER als "*Lecidea fuscoatra* f. *fumosa* (Hoffm.) Nyl."). - Old Man Range, summit plateau near Hyde Rock, 49° 22' S, 169° 12' E, 1610-70 m, small rocks lying on ground in scattered alpine tundra, 3 February 1985, H. HERTEL 30368 (M). - Mt Watkin, on rock, J.S. THOMSON 1551 (CHR 399191).

Tasmania: Mt Barrow Chalet, 41° 23' S, 147° 25' E, 600 m, granite, 30 January 1966, G.C. BRATT 3233 (HO 38855). - Coastal rocks between Shelly Point and Buxton Point S of Swansea (N of Mayfield), 42° 14' S, 148° 01' E, dolerite, 18 February 1985, H. MAYRHOFER (no. 7327) & H. HERTEL (GZU).

All specimens uniformly contain gyrophoric acid.

(14) *Lecidea auriculata* Th.Fr.

Th. FRIES, Lich. Arctoi : 213 (1860); HERTEL, Khumbu Himal 6 (3): 233-234 (1977); HERTEL, Mitt. Bot. München 13: 339-342 (1977); M. INOUE, Journ. Sci. Hiroshima Univ., ser. B, div. 2, 18: 26-28 (1982); A. SCHWAB, Mitt. Bot. Mün-

chen 22: 307-312 (1986).

Argentina: Prov. Mendoza: In vicinis montis Aconcagua, Puerta del Jueas (?), 16 February 1903, G.O.A. MALME s.n., Itin. Regnell. Secund. (S).

Falkland Islands (Islas Malvinas): Port Standley, the quartzite ridge, 8 April 1902, C. SKOTTSBERG (S).

Tasmania: Crater Peak, alpine moorland, on quartzite, 1200 m, 16 February 1984, P. JAMES & G. KANTVILAS 425/84 (hb. Kantvilas, M).

Lecidea auriculata has its centre of distribution in arctic and subarctic regions where it is locally quite common. It is closely related to *Lecidea diducens* Nyl. The main difference between these species is the presence of 2'-O-methylanziaic acid (causing the C+ red reaction of the excipulum) in *Lecidea diducens*. Although both chemotypes are sympatric over wide parts of their range, they do not appear to be identical in their ecology and chorology.

(15) *Lecidea capensis* Zahlbr.

ZAHLBRUCKNER, Catal. Lich. Univ. 3: 532 no. 6345 (1925) nom. nov.; RAMBOLD, Biblioth. Lichenol. 34: 168 (1989) - *Lecidea ochroidea* Stiz. Ber. Thätigk. St. Gall. Naturw. Ges. 1889-90: 159-160 (1891) nom. illegit. (sed non *Lecidea ochroidea* Ach. 1803).

New Zealand: Nelson: Kaihoka Coast, coastal forest near Kaihoka Lakes, 40° 33' S, 172° 36' E, 12 December 1982, J.K. BARTLETT 22862 (M, containing 2'-O-methylperlatolic acid).

The species usually has a pale yellowish brown thallus and superficially resembles *Lecidea fuscoatra* (L.) Ach., It was hitherto known from South Africa (type) and Australia (RAMBOLD 1989) and is a new record for New Zealand.

(16) *Lecidea diducens* Nyl.

NYLANDER, Flora 48: 148 (1865); HERTEL, Herzogia, 2: 43-44 (1970); HERTEL, Khumbu Himal 6 (3) : 243-244 (1977); HERTEL, Mitt. Bot. München 13: 340, 343-344 (1977); SCHWAB, Mitt. Bot. München 22: 322-324 (1986); RAMBOLD, Biblioth. Lichenol. 34: 208 (1989).

New Zealand: Canterbury: South-western slopes of Foggy Peak, Torlesse Range, on exposed greywacke rocks in alpine fell field, 1040 m, 23 March 1980, J.A. ELIX 7665 (ANUC). - Torlesse Range, Porters Pass W of Springfield, 43° 17' S, 171° 44' E, c. 1000 m, 22 January 1985, H. MAYRHOFER 7462 (GZU), 7463 (GZU). - Mt Peel, Lynn Stream Valley, Long Speer above Acland's hut, 43° 50'30" S, 171° 11' E, trail to summit of Mt Peel, c. 650 m, 15 January 1985, H. HERTEL 29421, 29452 (M).

Otago: Mt Maungatua, 45° 54' S, 170° 08' E, rock outcrops at swampy summit plateau, ± 890 m (subalpine/alpine situation), 31 January 1985, H. HERTEL 30058 (M), 30063 (M), 30079 (M).

This bipolar species is well known from Holarctic regions (see HERTEL 1977b: 340). It was first reported from the Southern Hemisphere (Australia) by RAMBOLD (1989) and is a new record for New Zealand. All specimens contain 2'-O-methylanziaic acid in the excipula of the ascocarps, causing a bright C+ red reaction.

(17) *Lecidea fuscoatrula* Nyl.

NYLANDER, Lich. Novae Zelandiae : 106 (1888); HERTEL, Beih. Nova Hedwigia 79: 418, 482 (1984); RAMBOLD, Biblioth. Lichenol. 34: 173 (1989).

New Zealand: *Canterbury*: Lowry Peaks Range, Mt Palm, 42° 41' S, 173° 06' E, 6 km ESE of Waiiau, ± 300 m, open tussock grassland area, on sandstone outcrops, 4 December 1980, L. TIBELL 9875 (UPS). - Bank's Peninsula, on outcropping siliceous rocks facing SE, 1 January 1981, L. TIBELL 10165 (UPS). - Bank's Peninsula, Kennedy's Bush, 43° 39' S, 172° 36' E, hill with siliceous outcrops, ± 200 m, 1 November 1981, V. WIRTH (11152) & L. GREENFIELD (STU), and V. WIRTH (11157) & L. GREENFIELD (STU). - Bankside Scientific Reserve, Canterbury Plains between Selwyn and Rakaia River, c. 6 km SSW of Dunsandel, 65 m, loose peddles on ground, 14 January 1985, H. HERTEL 29211 (M). - Rangitata River Co., Stew Point, 43° 43' S, 171° 05' E, rock outcrops on steep, sun exposed, heavily grazed slope, 17 January 1985, H. HERTEL 29241 (M), 29642 (M), 29633 (M), 29644 (M). - Summit of Mt Peel, 43° 51' S, 171° 09' E, 1730 m, schist outcrops, 16 January 1985, H. HERTEL 29522 (M), 29587 (M). - Lake Ohau, Lake Ohau Lodge, associated with *Lecanora subglaucodea* (Krempelh.) Zahlbr., February 1958, MASON 387a (OTA, Murray Collection).

Otago: Flagstaff Hill near Dunedin, 45° 50' S, 170° 28' E, rock outcrops (basalt) near summit, ± 650 m, 1 February 1985, H. HERTEL 30102 (M). - Summit of Silver Peak (Pulpit Rock), 45° 45' S, 170° 26'30" E, W of Waitati, horizontal schist layers near ground, 760 m, 29 January 1985, H. HERTEL 32345 (M). - Old Man Range, summit plateau near Hyde Rock, 45° 21' S, 169° 12' E, stones on ground in alpine tundra vegetation, ± 1650 m, 3. February 1985, H. HERTEL 30365 (M). - Old Man Range, Fruitlands, schist rocks, 465 m, 6 February 1981, C.D. MEURK & V. WIRTH (hb. Meurk).

(18) *Lecidea kalbii* Hertel

HERTEL, Beih. Nova Hedwigia 79: 418-419 (1984).

Chile: Tierra del Fuego: Porvenir, on stones on the seashore NW of the town, in the *Caloplaca sublobulata*-belt, 28 December 1940, R. SANTESSON 6886 (S).

Argentina: Tierra del Fuego: Dept. Rio Grande, *Nothofagus antarctica*-Wald und windgefegter Rücken etwa 3 km E Estancia Despedida (WSW Rio Grande), 6. Januar 1989, J. POELT (GZU).

Untill now, *Lecidea kalbii* was known only from the type collection from Chile (Ultima Esperanza, Torres del Paine). The species resembles *Lecidea atrobrunnea* in its general appearance, but differs in its larger spores and C+ red cortex and excipulum (due to the presence of gyrophoric acid). The hypothecium is completely unpigmented and the medulla I negative. The interior part of the excipulum is also unpigmented but appears opaque pale brownish when the sections are observed in water. This is because the hyphae are densely interspersed with minute, pale brownish crystals containing gyrophoric acid which dissolve completely in KOH and turn reddish in hypochlorite solution. The hymenium is 45-50 µm tall, with a dark greyish olive epihymenium. Spores are often poorly developed and are 8-10-13 x 4-5.7-6.5 µm.

(19) *Lecidea lapicida* (Ach.) Ach.

HERTEL, Beih. Nova Hedwigia 79: 419-420 (1984); HERTEL, Mitt. Bot. München 21: 323-325 (1985), 23: 326-327 (1987); G. SCHWAB, Mitt. Bot. München 22: 324-342 (1986) - RAMBOLD, Biblioth. Lichenol. 34: 210 (1989).

Although intermediate specimens containing both stictic and norstictic acids in significant quantities occur occasionally (SCHWAB 1986) and both chemical strains are sympatric over wide regions there is a remarkable geographical separation in cool temperate regions. Therefore, I tend to follow WIRTH (1987 p.511), who treats these two chemotypes as varieties of *Lecidea lapicida* the stictic acid chemotype as var. *lapicida*, the norstictic acid chemotype as var. *pantherina*.

var. lapicida

Argentina: Staten Island: Port Cook, 1888, C. SPEGAZZINI no. 63 (LPS 35146, det. C.W. DODGE 1970 als "*Lecidea impolita* Müll. Arg.").

Tierra del Fuego: Porvenir, Morro Piedra, on boulder in *Chiliotrichum* heath, 300 m, 31 December 1949, R. SANTESSON 5355 (S), 5356 (S, beside *Rimularia psephota*). - Sierra Alvear, the southern slope, above Las Cotorras (about 20 km ENE of Ushuaia), on exposed rocks in the alpine region, c. 550 m, 7 February 1940, R. SANTESSON 939 (S). - Sierra Alvear, Berg SE Monte Alvear, 220-1200 m, N vom Restaurant Tierra Mayor, 14. Januar 1989, J. POELT (GZU). - Parque Nacional de Tierra del Fuego, äußeres Ende der Bahía Lapataia, felsige Küste, 0-5 m, 13. Januar 1989, J. POELT (GZU). - Dept. Rio Grande, N-Rand der Anden, Cerro Chenen E Hacienda Chenen, felsiger NE-Hang, 200-230 m, 8. Januar 1989, J. POELT (GZU, 2 Proben).

New Zealand: Canterbury: Phipps Peak, rock at summit, 1905 m, near Arthur Pass, ca. 42° 54' S, 171° E, 5 March 1966, B.A. FINERAN 2275 (CANU, det. C.W. DODGE as "*Lecidea dunedina* Zahlbr."). - Phipps Peak, ridge to summit, 1830 m, on rock, 5 March 1966, B.A. FINERAN 2263 (CANU, det. C.W. DODGE as "*Lecidea dunedina* Zahlbr."). - Bank's Peninsula, Devils Cap (between Lake Forsyth and Akaroa Harbour), 43° 49'30" S, 172° 49'30" E, ± E exposed basaltic rocks near summit, 670-710 m, 19 January 1985, H. HERTEL 29693, 29694 (M). - Summit of Mt Peel, 43° 51' S, 171° 09' E, 1740 m, exposed rock surface, 16 January 1985, H. HERTEL 29586 (M).

Otago: Rock and Pillar Range, schist rock top, 1190 m, 18 September 1981, C.D. MEURK ML16 (hb. Meurk). - Maungatua Summit, rock, J.S. THOMSON 1374, ZA 289 (CHR 347036). - Old Man Range, Obelisk, 45° 19' S, 169° 13' W, near Fruitlands, 1690 m, alpine *Celmisia-Raoulia* vegetation, siliceous rocks, 6 November 1981, V. WIRTH (11317) & C.D. MEURK (STU). - Old Man Range, Obelisk Range, 1670 m, 3 February 1985, H. HERTEL 30342 (M). - The Remarkables, Double Cone above Lake Alta, 45° 04' S, 168° 48' E, 2250-2280 m, exposed rocks near summit, 5 February 1985, H. HERTEL 30440 (M), 30343 (M), 30435 (M), 30439 (M).

Southland: West Dome, on summit rocks, 1230 m, 20 June 1982, C.D. MEURK ML21 (hb. Meurk).

Tasmania: Hounslow Heath, schist rock outcrops in alpine heath, 1120 m, 17 February 1984, P. JAMES & G. KANTVILAS 344/84 (hb. Kantvilas).

South Georgia: About 10-15 m below "Summit 706 m" due E of Swinhoe Peak above Hamburg Glacier, on block scree on S-facing slope, probably never receiving direct sunshine, 6 November 1976, R.I. LEWIS SMITH 2531 (AAS). - Bird Island: slopes to east above Jordon Cove (GR 032 154), on schistose rock, dry but exposed 25° slope, aspect 250°, 150 m, 11 November 1971, D.C. LINDSAY 3005 (AAS), 3011 (AAS), 3015 (AAS). - Right Whale Bay, c. 1 km SW of Nameless Point (GR 054 157), on moss in pockets of boulder on scree, 200 m, 5 January 1972, D.C. LINDSAY 3823 (AAS). - Cumberland East Bay, Brown Mountain, rocks to west of summit (GR 132 123), on dry exposed greywacke rocks facing west, 300 m, 26 November 1971, D.C. LINDSAY 3233 (AAS). - Cumberland East Bay, Hope Point (GR 133 124), on moderately sheltered dry, non-nitrogenous greywacke outcrop facing south, 50 m, 24 November 1971, D.C. LINDSAY 3187 (AAS), 3193 (AAS). - Cumberland East Bay, c. 1 km W of Mt Duse (GR 133 127), 350 m, exposed dry greywacke outcrop facing W, 23 November 1971, D.C. LINDSAY 3133 (AAS), 3134 (AAS), 3141 (AAS, beside *Tephromela atra*). - Royal Bay, near waterfall on SW side of Whale Valley (GR 158 098), on dry non-nitrogenous boulder, 30 m, 17 January 1972, D.C. LIND-

SAY 3947 (AAS), 3948 (AAS, beside *Carbonea assentiens*). - 1 km SE of Brocken (GR 162 101), 180 m, on dry non-nitrogenous E-facing outcrops, 23 January 1972, D.C. LINDSAY 4028 (AAS). - 0.5 km W of Cape Vahsel (GR 177 071), on west-facing dry slightly nitrogenous outcrop, 150 m, 28 December 1971, D.C. LINDSAY 3704a (AAS).

Antarctica: *West Graham Land*: Argentine Islands: Galindez Island, 65° 15' S, 64° 15' W, from typical boulder area, just uncovered by snow, 27 December 1935, British Graham Land ("Penola") Expedition 1934-37, no. 1328m (BM).

var. pantherina Ach.

ACHARIUS, Kongl. Svensk. Akad. Nya Handl.: 232 (1808) - *Lecidea pantherina* (Ach.) Th.Fr., Lich. Scand.: 491-493 (1874).

- *Lecidea lactea* Flk. ex Schaer., Lich. Helvet. Spicil.: 127-128 (1828) - *Lecidea lapicida* var. *lactea* (Schaer.) V. Wirth, Die Flechten Baden-Württembergs: 511 (1987).

New Zealand: *Nelson*: Upper Cobb Valley, headwaters of Burgoo Stream, 1180 m, 16 December 1983, J.K. BARTLETT 27024 (M).

Canterbury: Phipps Peak, ridge to summit, 1830 m, 5 March 1966, B.A. FINE-RAN 2264 (CANU, det. C.W. DODGE as "*Lecidea subtenebrosa* Nyl."). - Mt Peel, summit, 43° 51' S, 171° 09' E, 1600-1700 m, 16 January 1985, H. HERTEL 29505 (M).

Otago: North Old Man Range, summit, 1690 m, 6 November 1981, C.D. MEURK ML15 (hb. Meurk). - Rock and Pillar Range, summit rocks, 1430 m, together with *Buellia* sp., on schist rocks near to ground, 28 January 1985, H. HERTEL 32256 (M), 32267b (M).

(20) *Lecidea lygomma* Nyl.

HERTEL, Mitt. Bot. München 23: 327-329 (1987); RAMBOLD, Biblioth. Lichenol. 34: 214 (1989).

New Zealand: *Nelson*: W of Matakita River Bridge, on schist outcrop, 300 m, 24 May 1970, P. CHILD 361 (Herbar P. Child). - Tasman Mts, Lonely Lake, ± 1270 m, 20 December 1983, J.K. BARTLETT (M). - Upper Cobb Valley, headwaters of Burgoo Stream, 1180 m, 16 December 1983, J.K. BARTLETT 27011 (M).

Westland: on moraine boulders of Franz Josef Glacier, 12 March 1966, W. MARTIN (CHR 407423).

Canterbury: Arthur's Pass National Park, Temple Basin, 42° 54' S, 171° 35' E, 1400 m, 1500 m, niedrige, wasserübersickerte Sandsteinfelsen am Wegrund, 23 January 1985, H. HERTEL 29833 (M), 29849 (M). - Bank's Peninsula, on outcropping siliceous rocks facing SE, 1 January 1981, L. TIBELL 10172 (UPS).

Otago: Mt Maungatua SW of Dunedin, 45° 54' S, 170° 08' E, rock outcrops at swampy summit plateau, 880 m, 31 January 1985, H. HERTEL 30046 (M). - Pulpit Rock near Dunedin, 400 m, 16 November 1968, D.J. GALLOWAY (BM). - Old Man Range, SW of Alexandra, summit plateau near Obelisk, 45° 20' S, 169° 12' E, 1670 m, pebbles lying on ground in scattered alpine vegetation, 3 February 1985, H. HERTEL 30338 (M). - 5 to 6 miles S of Sutton, Mosgiel-Middlemarch road, schist tor, c. 430 m, 18 September 1981, C.D. MEURK ML18 (hb. Meurk).

Southland: Kiriwao Summit (S. of Clinton), 640 m, 16 March 1983, C.D. MEURK (hb. Meurk). - West Dome, summit ridge, East Peak, c. 1100 m, 20 June 1982, C.D. MEURK ML36 (hb. Meurk).

Auckland Islands: *Auckland Island*: Summit of Mt Eden, 420 m, 31 December 1962, P.W. JAMES 832b (BM), 832d (BM).

Campbell Islands: Summit rock of Mt Lyall, 400 m, 22 January 1981, C.D. MEURK

56 (BM). - Cliff crest E of Mt Dumas, 190 m, exposed stones on peaty fellfield, 31 December 1980, C.D. MEURK s.n. (BM). - Mt Honey, summit, 570 m, 10 January 1981, C.D. MEURK (BM) and 3 February 1981, C.D. MEURK 102 (BM), 104 (BM).

Macquarie Island: Cliffs on the western side of the island a ½ mile S of Double Point, on rocks in a northerly aspect, 180 m, 3 February 1964, R. FILSON 5914 (MEL 1048287). - NW of Mt Gwynn, on rock, 240 m, 30.12.1971, R. HNATIUK 11568 (MEL 1027329).

(21) *Lecidea placodiiformis* Hue

HUE, Deux Expéd. Antarct. Franç. (1908-1920), Sci. Nat., Docum. Sci., Lichens: 99-101 (1915); HERTEL, Herzogia 5: 455-456 (1981); HERTEL, Beih. Nova Hedwigia 79: 420-421 (1984).

Antarctica: West Graham Land: Wiencke Island, Port Lockroy, Goudier Islet, 64° 50' S, 63° 31' W, near summit of island, 8 m, on igneous rock, 2 April 1944, I.M. LAMB, Operation Tabarin, A1201 (BM) and (same locality): 11 January 1945, I.M. LAMB, Operation Tabarin, no. 1195 (BM), 2237 (BM). - Doumer Island, 64° 51' S, 63° 35' W, rocky outcrop on N side, c. 30 m, N exposure, on granodiorite rocks, 12 December 1944, I.M. LAMB, Operation Tabarin, no. 1912 (BM). - Argentine Islands, SE corner of Winter Island, overlooking Stella Creek, 65° 15' S, 64° 16' W, rock exposures, 15 March 1960, B.J. TAYLOR 155 (AAS). - Galindez Island, 65° 15' S, 64° 15' W, from nearly vertical low sea cliff, 2-8 m, 31 March 1935, British Graham Land ("Penola") Expedition 1934-37, no. 1116a (BM), 1116d (BM), 1116m (BM), 1116p (BM), 1116t (BM), 1116x (BM). - Marguerite Bay, SE corner of Bourgeois Fjord, 67° 40' S, 67° 05' W, 15 December 1936, British Graham Land ("Penola") Expedition 1934-37, no. 1515b (BM). - Lagotellerie Island, Fallières Coast, 67° 53' S, 67° 24' W, N facing rock slope, 35-80 m, 22 February 1977, R.I. LEWIS SMITH 2202 (AAS).

All specimens listed here contain confluent acid, 2'-O-methylperlatolic acid, and often 2'-O-methylmicrophyllinic acid as the major constituents. In this respect, this Antarctic population differs from *Lecidea atrobrunnea*, a morphologically and anatomically indistinguishable species which contains only 2'-O-methylperlatolic acid.

It is remarkable that in this case, in contrast to most other lichens, the chemically richer chemotype is from an area with a polar climate while that with the "impoverished", simpler chemistry is found in temperate climates, e.g. Australia (see RAMBOLD 1989). It is also remarkable that I have not found *Lecidea placodiiformis* represented in the collections from the South Shetland Islands, South Orkney Islands or from South Georgia, three relatively well-collected areas of the Antarctic zone, at least with respect to the more conspicuous species.

(22) *Lecidea sarcogynoides* Koerb.

KOERBER, Syst. Lich. Germ.: 252 (1855); HERTEL, Decheniana 127: 56, 72 (1975); HERTEL, Mitt. Bot. München 21: 422 (1984); HERTEL, Beih. Nova Hedwigia 79: 422 (1984); HERTEL, Mitt. Bot. München 23: 329 (1987); RAMBOLD, Biblioth. Lichenol. 34: 185 (1989).

New Zealand: Canterbury: Bank's Peninsula, Campy Bay, in litoral zone of NE facing sea shore rocks, 31 December 1980, L. TIBELL 10147 (UPS).

Otago: Dry hills N of Alexandra, 280 m, 45° 14' S, 169° 25' E, 280 m, siliceous rocks, 6 November 1981, V. WIRTH (no. 11296) & C.D. MEURK (STU).

(23) *Lecidea spheniscidarum* Hertel

HERTEL, Beih. Nova Hedwigia 79: 422-423 (1984); HERTEL, Mitt. Bot. München 23: 329 (1987).

South Orkney Islands: *Lynch Island*: On rock fragments near gutt rockery, 10 m, 60° 40' S, 45° 38' W, 16 March 1966, D.C. LINDSAY 979 (AAS).

Signy Island: Borge Bay: Largest of the Thule Islands, 60° 42' S, 45° 37' W, on rock fragments near gull nests, 15 m, 13 October 1966, D.C. LINDSAY 1299 (AAS - a specimen absolutely identical with the type specimen in all anatomical characters, but instead of the typical very pale brownish thallus, with a reddish, rusty coloured one, thus resembling somewhat *Lecidea silacea* (Web.) Ach., and therefore determined as "*Lecidea dicksonii*" by LINDSAY).

This is a remarkable species (keyed in HERTEL 1984) characterized by its relatively tall hymenium (70-100 µm) and its slender and large spores.

Spore size medium values:

Collection	length (l) [µm]	width (w) [µm]	l : w
holotype	15- <u>16.3</u> -18	4.5- <u>5.6</u> -6.5	2.9
LAMB 2299	12- <u>16.1</u> -21	5.0- <u>6.7</u> -8.0	2.4
LINDSAY 1090	10- <u>12.4</u> -15	4.5- <u>6.2</u> -7.0	2.0
LINDSAY 1299	12- <u>15.3</u> -19	5.0- <u>6.3</u> -8.0	2.4

Lecidea spheniscidarum is hitherto only known from five localities on the South Orkney and South Shetland Islands.

(24) *Lecidea umbonata* (Hepp) Mudd

MUDD, Manual Brit. Lich.: 204 (1861); HERTEL, Beih. Nova Hedwigia 24: 37-40 (1967); HERTEL, Herzogia 2: 497-499 (1973) et 4: 379, 398 (1977) - *Biatora umbonata* Hepp, Flechten Eur. no. 257 (1857).

Argentina: *Tierra del Fuego*: Dept. Ushuaia, Montes Martial bei Ushuaia oberhalb Acrosilla, Silikatfelsen im Krummholzbereich, S- und SE-Hänge, 700-1000 m, über kalkhaltigem Schiefer, 17. Januar 1989, J. POELT (GZU, several very small thalli beside *Farnoldia*).

This is the first Southern Hemisphere record of this calciphilous species which is closely related to *Lecidea lapicida*. Its Northern Hemisphere distribution is mapped in HERTEL (1977c: 398).

(25) *Lecidea verruca* Poelt

POELT, Mitt. Bot. München 4: 187 (1961); HERTEL, Herzogia 1: 433-434 (1970) and 2: 500-501 (1973); HERTEL, Mitt. Bot. München 12: 142-143 (1975) and 17: 179 (1981).

Argentina: *Tierra del Fuego*: Montes Martial bei Ushuaia, oberhalb Acrosilla, Silikatfelsen im Krummholzbereich, S- und SE-Hänge, 700-1000 m, 17. Januar 1989, J. POELT (GZU).

Chile: *Tierra del Fuego*: Porvenir, Morro Piedra, on boulder in *Chilotrichum* heath,

300 m, 31 December 1940, R. SANTESSON 6857 (S), 6858 (S, rich material), 6860 (S, very scanty material).

These are the first records of this species for the Southern Hemisphere. It is not clear whether the lichens are growing parasitically.

(26) *Lecidella elaeochroma* (Ach.) Choisy s. ampl.

CHOISY, Bull. Mens. Soc. Linn. Lyon 19: 19 (1950); HERTEL, Willdenowia 6: 248-249 (1971).

Prince Edward Islands: *Marion Island*: Transvaal Cove, Meteorological Station, 46° 53' S, 37° 51' E, on old wooden stairs of the Geophysical Laboratory building, 6 May 1982, H. HERTEL 24452 (M).

Kerguelen Island: Observatory Bay, 49° 25'12" S, 69° 53'22" E, on timber of old hut, British Transit of Venus Expedition, 20.-21 February 1930, members of B.A.N.Z.A.R.E., no. B195-1 (AD; det. C.W. DODGE as "*Lecidea subplana* Nyl.>").

Macquarie Island: Wireless Hill, N Head of Macquarie I., on wood of MAWSON's old Wireless Hut, 15 January 1964, R. FILSON 5715 (MEL 1041275).

The occurrence of this usually corticolous lichen on three, very remote, subantarctic islands with a species-poor, vascular plant flora which does not include trees or shrubs is remarkable. It is unclear, whether *Lecidella elaeochroma* was introduced by man or whether it is a very reproductive pioneer lichen, well-adapted to very long distance dispersal. On the Prince Edward Islands, I saw it only on the timber of huts, but not on natural, woody, plant remnants which are very rare in these perhumid, cool and constantly wind-swept islands, e.g. old roots of *Azorella selago*.

(27) *Lecidella schistiseda* (Zahlbr.) Hertel

HERTEL, Mitt. Bot. München 19: 443-444 (1983); Beih. Nova Hedwigia 79: 450 (1984) - *Lecidea schistiseda* Zahlbr., Denkschr. Akad. Wiss. Wien, math.-nat. Kl. 104: 300-301 (1941).

New Zealand: *Otago*: Old Man Range, Obelisk near Fruitlands, 45° 19' S, 169° 13' E, 1690 m, alpine *Celmisia*-*Raoulia* vegetation, siliceous rock, 6 November 1981, V. WIRTH (no. 11860) & D.D. MEURK (STU).

(28) *Lecidella stigmata* (Ach.) Hertel & Leuckert

HERTEL, Mitt. Bot. München 21: 325 (1985); RAMBOLD, Biblioth. Lichenol. 34: 112 (1989).

Peru: *Dept. Junin*: Prov. Tarma, at km 35 on road from Tarma to Jauja (20 km SE of Tarma), 4100 m, calcareous outcrops and cliffs with low spiny shrubs of *Ribes* and *Mahonia*, 28 November 1962, H.H. & C.M. ILTIS LP-13 (WIS).

Argentina: *Govt. Santa Cruz*: Rio Gallegos, Estancia Güer-Aike, on basaltic rocks on the edge of the meseta just above the valley of Rio Gallegos, 18 January 1940, R. SANTESSON 7096 (S).

Tierra del Fuego: *Dept. Rio Grande*, N-Rand der Anden, Cerro Chenen E Hacienda Chenen, felsiger NE-Hang, 200-230 m, 8. Januar 1989, J. POELT (GZU).

New Zealand: *Canterbury*: Cave Stream and Flock Hill above Cave Stream, 650-

750 m, 43° 12' S, 171° 45' E, limestone outcrops in tussock grassland with scattered *Dis-caria toumatou*, 9 September 1981, H. MAYRHOFER 2301 (GZU), 2310 (GZU). - Cass, Cass Hill near the University of Canterbury Field Station, 750 m, 43° 02' S, 171° 46' E, *Nothofagus solandri* var. *cliffortioides* forest, 7 September 1981, H. MAYRHOFER 2410 (GZU). - Rangitata River Co., Stew Point, 43° 43' S, 171° 05' E, boulders in the heavily grazed bottom of the valley, 17 January 1985, H. HERTEL 29635 (M).

Otago: Lake Hayes NE of Queenstown, boulders at the shore of the lake, 20 September 1981, H. MAYRHOFER 2246 (GZU).

Southland: Springhills, Sharks Tooth, April 1961, on limestone rocks, J. MURRAY 5847 (OTA), 5848 (OTA). - "Springfield", Otikerama, 215 m, on rock (sandstone) bluff, with *Trapelia coarctata*, 27 February 1984, C.D. MEURK ML7 (hb. Meurk).

Tasmania: Table Cape, 3 miles N of Wynyard (N.W. coast), on boulders of analcite-olivine-dolerite at S.E. base of headland, against the sea, 9 January 1967, J.H. WILLIS (MEL 1031111 - TLC: atranorin, zeorin).

South Shetland Islands: Half Moon Island, 62° 35' S, 59° 55' W, hill S of the huts, on basaltic rock facing WNW, 30 m, 5 January 1966, D.C. LINDSAY 600 (AAS - a specimen with rather small apothecia, up to 0.6 mm in diam., hymenium 65-75 µm, spores 14-16 x 7-9 µm).

Antarctica: East Graham Land: Ross Island, Cape Gage, rock on talus slope, 6 m, 29 November 1945, I.M. LAMB, Operation *Tabarin*, no. 2845 (BM).

(29) *Megalospora gompholoma* (Müll.Arg.) Sipman subsp. *gompholoma*

SIPMAN, *Biblioth. Lichenol.* 18: 105-106 (1983).

The following specimen is growing directly on rock and was found associated with undetermined herbarium material:

Auckland Islands: Rose Island: On maritime and fresh water rocks, directly on rock, 9 January 1963, P.W. JAMES (BM). - A second record for the Auckland Islands (cfr. SIPMAN 1983: 234).

(30) *Paraporpidia leptocarpa* (Bab. & Mitt.) Rambold & Hertel

in RAMBOLD, *Biblioth. Lichenol.* 34: 250 (1989) - *Lecidea leptocarpa* Nyl. ex Bab. & Mitt. in HOOKER, *Flora Tasmaniae* 2: 352, tab. CC, fig. C (1859); HERTEL, *Beih. Nova Hedwigia* 79: 464-465 (1984); GALLOWAY, *Flora New Zealand Lich.* : 234-235 (1985).

New Zealand: Auckland: Little Barrier Island, on clay, 30 m, April 1975, D.J. COURT H30.56 (AK). - Thames Co., Rabbit Island, on rocks of cliff tops, August 1973, B.W. & G.C. HAYWARD 49.147 (AK). - Coromandel Peninsula, Mt Te Moehau, Little Moehau, 36° 32' S, 175° 24' E, 850 m, on andesite, 24 February 1983, J.K. BARTLETT 22675 (M), 22678 (M). - Waitakere Coast, Whatipu, 37° 04' S, 174° 30' E, 25 m, on volcanic andesitic rock, 27 October 1983, J.K. BARTLETT 27014 (M). - Rangitoto Island, coastal rock, above spray zone, H.H. ALLAN (CHR 347196). - Rangitoto Island, 36° 48' 30" S, 174° 52' E, lava rock at shore, 10 January 1985, H. HERTEL 29024 (M); interior of the island, 10 January 1985, H. HERTEL 29027 (M). - Coromandel Co., Mt Maungatawhiri, near Whitianga, on rocks in grassland, August 1974, B.W. HAYWARD H44.239 (AK).

Gisborne: East Cape: Mt Hikurangi, c. 1200 m, 29 December 1982, J.K. BARTLETT 27006 (M).

Hawkes Bay: NW Ruahine, Otupai Range, western slopes, 39° 32' S, 176° 11' E,

1000-1100 m, 17 October 1983, J.K. BARTLETT 26999 (M), 27012 (M).

Wellington: York Bay (near Wellington), steep earth slope at the path between the forest and the road, 17 December 1926, G.E. & G. DU RIETZ 1277 (UPS). - North Tararua Range, Pahiatua Track, March 1970, D.J. GALLOWAY (?) (BM).

Nelson: Tasman Mts, Lonely Lake, c. 1270 m, 20 December 1983, J.K. BARTLETT 26976 (M). - Near Dunn Saddle, 41° 21' S, 173° 22' E, on ultrabasic rock, 1460 m, 12 January 1983, J.K. BARTLETT 24568 (M). - Ultramafic area near summit of Mt Dunn 1000 m, 15 July 1979, J.K. BARTLETT 27038 (M) - Upper Cobb Valley, headwaters of Burgoo Stream, c. 1180 m, 16 December 1983, J.K. BARTLETT 26972 (M). - Mt Cobb, 1585 m [undated], J.K. BARTLETT 24580 (M). - Lake Rotoiti, 600 m, 14 January 1960, D. SCOTT, hb. Murray 435 (OTA).

Canterbury: Arthur's Pass National Park: Woolshed Hill, from Hawdon Shelter following the summit track, 42° 49' S, 171° 45' E, 700 m, rock outcrops in *Nothofagus solandri* var. *cliffortioides* forest, 24 January 1985, H. HERTEL 29941 (M). - 9.5 km SSE of Arthur's Pass, Bealy Spur, along track to Grasmere Hut, 43° 02' S, 171° 35' E, on pebbles in open area, 17 December 1980, L. TIBELL 10103 (UPS). - Porters Pass, Torless Range, 970 m, on greywacke in alpine heath, 23 March 1980, J.A. ELIX 7647 (ANUC). - Bank's Peninsula, 1 km SE of Carew's Peak, 640 m, on basalt in tussock grassland, 10 June 1980, J.A. ELIX 8582 (ANUC). - Bank's Peninsula, on outcropping siliceous rocks facing SE, 1 January 1981, L. TIBELL 10173 (UPS). - Mt Peel, Lynn Stream valley, Long Speer above Acland's Hut, 43° 50' 50" S, 171° 11' E, 770 m, shaded rock face, 15 January 1985, H. HERTEL 29442 (M), 29448 (M).

Otago: W Red Hut, Herbert, 610 m, schist outcrops, 8 July 1970, P. CHILD 518 (Child). - Kidd's Bush, Lake Hawea, 300 m, 3 June 1973, P. CHILD 1803 (Child). - Flagstaff Hill near Dunedin, rock outcrops near summit, 45° 50' S, 170° 28' E, 650 m, 1 February 1985, H. HERTEL 30114 (M). - Hooper's Inlet, Otago Harbour, 18 February 1953, W. MARTIN (CHR 407364). - Summit of Mt Charles, Otago Peninsula, 400 m, 22 July 1970, P. CHILD 577 (Child). - Summit of Silver Peak (Pulpit Rock), 45° 45' S, 170° 26' 30" E, W of Waitati, horizontal schist layers near ground, 760 m, 29 January 1985, H. HERTEL 32345 (M, beside *Lecidea fuscoatrula*). - Mt Maungatua, 45° 54' S, 170° 08' E, swampy summit plateau with scattered rocks, 850-890 m, 31 January 1985, H. HERTEL 30089 (M). - Rock and Pillar Range, below University Hut, 900 m, on small quartz rock in open *Chionochloa rigida* tussock grassland, 28 March 1980, C.D. MEURK (BM).

Southland: Dunrobin Stn., mid Aparima Valley, 247 m, 2 October 1984, C.D. MEURK ML32 (hb. Meurk). - West Dome, S slopes of East Peak, c. 600 m, 20 June 1982, C.D. MEURK ML35 (hb. Meurk).

Tasmania: King Island, Cape Wickham, 39° 34' S, 143° 57' E, 1969, J. WANGAREK (HO 65282). - King Island, 39° 55' S, 144° 00' E, 1968, J. WANGAREK, hb. BRATT no. 68/1497 (HO 63738). - Yarra Creek gorge, E. coast of King Island, 6 March 1966, J.H. WILLIS (MEL 1018529). - Mathinna, 41° 29' S, 147° 53' E, 26 October 1972, J. ADAM S, hb. BRATT no. 72/1155 (HO 65266). - Crater Lake Lookout, 41° 39' S, 145° 57' E, on quartzite, exposed and uncommon, 8 January 1972, G.C. BRATT 72/23 (HO 63730). - Coastal rocks between Shelly Point and Buxton Point, 42° 14' S, 148° 01' E, S of Swansea (N of Mayfield Bay), dolerite, 18 February 1985, H. MAYRHOFER (no. 7347) & H. HERTEL (GZU). - Orford Beach, 42° 34' S, 147° 52' E, on sandstone on exposed cliffs, very common, 17 November 1963, G.C. BRATT (no. 803) & J.A. CASHIN (HO 65323) - Orford Road between Bust-me-Gall Hill and Break-me-Neck Hill, 42° 37' S, 147° 38' E, 300 m, on dolerite in very open timber, common, 31 August 1968, G.C. BRATT (no. 68/842) & J.A. CASHIN (HO 65309). - Maria Island, 42° 38' S, 148° 05' E, on dolerite, exposed, Easter 1968, D.G. THOMAS (hb. BRATT 68/263) (HO 63759). - Mt Field National Park, track to Beatties Tarn, 42° 41' S, 146° 39' E, 920 m, 18 August 1963, G.C. BRATT & J.A. CASHIN, hb. BRATT no. 489a (HO 63715). - Black Hills Road summit, 42° 45' S, 147° 01' E, 390 m, on dolerite, 20 July 1963, G.C. BRATT (no. 386) & J.A. CASHIN (HO 63716). - Sorell-Nuget Road, Native Cherry Clump, 42° 45' S, 147° 41' E, 180 m, on dolerite, in the open, common, 15 July 1967, G.C. BRATT (no. 4114) & J.A. CASHIN (HO

CASHIN (HO 63673). - At Fossil Lake, 42° 47' S, 146° 29' E, 960 m, on rock at edge of lake, common, 7 June 1973, G.C. BRATT (HO 65291). - Grass Tree Hill, 42° 48' S, 147° 22' E, on exposed rock, 6 June 1964, G.C. & M.H. BRATT 1330 (HO 63712). - Port Arthur Road, 36.8 km from Sorell, 42° 50' S, 147° 38' E, on dolerite in the open, 7 March 1967, G.C. BRATT 3849a (HO 63698). - Lonnavale, 24 km NW of Huonville, 42° 51' S, 146° 47' E, 70 m, on dolerite in the open, 28 June 1964, G.C. BRATT (no. 1354a) & J.A. CASHIN (HO 63709) - Near Carlton Turn off on Port Arthur Road, 42° 52' S, 147° 41' E, 7 March 1967, G.C. BRATT & MATTHEWS, hb. BRATT 3845a (HO 63697). - Milles Track, Fern Tree, 42° 55' S, 147° 14' E, 800 m, on dolerite, 16 May 1964, G.C. BRATT (no. 1277) & J.A. CASHIN (HO 63719). - 14 km ESE of Huonville, Snug Mt, Snug Falls, 43° 05' S, 147° 12' E, on outcropping rock, 180 m, 8 March 1981, L. TIBELL 11277 (UPS, M). - Huon Road, 3 March 1891, (probably) W.A. WEYMOUTH (NSW 155807). - Mt Sprent, quartzite outcrops in *Gymnoschoenus* moorland, 800 m, 5 February 1987, G. KANTVILAS 5/87 (M). - Snug Falls Track, 43° 05' S, 147° 13' E, 360 m, 18 September 1966, G.C. BRATT (no. 3470) & M.H. BRATT (HO 63675). - Lune River Lagoon Mouth, 43° 26' S, 146° 54' E, 6 July 1968, G.C. BRATT 68/522 (HO 65308, beside *Tylothallia pahiensis*). - Scotts Peak Rd. near Celtic Hill, boulders in sedgeland heath, 400 m, quartzite, 11 August 1981, G. KANTVILAS & P.W. JAMES (BM). - Near Hobart(?), 1886(?), R.A. BASTOW(?) (H, ex hb. F.R.M. WILSON). - Summit of Mt Wellington, 1270 m, 5 January 1965, R. FILSON 6856 (MEL 1018537), 6860 (MEL 1031118); 1270 m, on exposed dolerite rocks, 16 January 1979, J.A. ELIX 5562 (ANUC, beside *Poeltiaria coromandelica*). - Mt Wellington, Myrtle Gully, 5 January 1965, R. FILSON 6837 (MEL 1031121), 6838 (MEL 1031119). - The Needles, outcrops in sedgeland-heath, 750 m, 5 January 1985, G. KANTVILAS 10/85 (hb. Kantvilas). - Crossing Plains, pebbles in sedgeland heath, 180 m, quartzite, 11 March 1984, G. KANTVILAS 127/84 (M). - Snug Tiers, mudstone and soil, disturbed ground in dry sclerophyll forest, 200 m, 12 October 1980, G. KANTVILAS 453/80 (hb. Kantvilas). - Prosser R., Orford, dolerite rocks in open *Eucalyptus* forest, 24 September 1981, G. KANTVILAS & A. HENSSEN 940/81 (hb. Kantvilas). - Sleepy Bay Road, 1 mile W of coastline, dry sclerophyll forest, on granite, 20 m, 2 February 1984, P. JAMES & G. KANTVILAS 160/84 (hb. Kantvilas). - Cox Bight, behind W beach, quartzite pebbles in sedgeland heath, 0 m, 5 March 1985, G. KANTVILAS 102/85 (hb. Kantvilas). - Kangaroo Point, no collector, no date (NSW 155746). - Mt Knocklofty, under dripping water, 1886, R.A. BASTOW (MEL 6977). - Mt Knocklofty, 23 August 1893, (probably) W.A. WEYMOUTH (NSW 155813). - Summit of the Acropolis, 7 January 1965, R. FILSON 6937 (MEL 1031116). - Lake St. Clair National Park, trail from Derwent River toward lakes at base of Mt Hugel, badly burnt forest, 24 February 1968, W.A. WEBER & D. McVAEN (COLO, L-49679).

All specimens contain confluent acid together with 2'-O-methylperlatolic and 2'-O-methylmicrophyllinic acid. *Paraporpidia leptocarpa* is a very common saxicolous lichen in most regions of New Zealand and Tasmania.

(31) *Poeltiaria coromandelica* (Zahlbr.) Rambold & Hertel

in RAMBOLD, Biblioth. Lichenol. 34: 265 (1989) - *Lecidea coromandelica* Zahlbr., Denkschr. Akad. Wiss. Wien, math.-nat. Kl. 104: 311 (1941) - HERTEL, Mitt. Bot. München 23: 326 (1987).

Tasmania: Lake St. Clair National Park, Cradle Mts, in the vicinity of the Labyrinth, 7 January 1965, R. FILSON 6978 (MEL 1031112). - Cradle Mountains National Park, 41° 39' S, 145° 57' E, on basalt boulders in snow beds, 1967, D. McVEAN 6753 (CBG). - Hounslow Heath, rock outcrops (schist) in alpine heath, 1080 m, 17 February 1984, P. JAMES & G. KANTVILAS 342/84 (hb. Kantvilas). - Ben Lomond National Park, 41° 32' S, 147° 30' E, on basalt pebbles in late snow area, 1967, D. McVEAN 6765 (CBG). - Mt

Rufus, ca. 1100 m, Bergwald-Region, lose Sandsteinplatten an einer Wegböschung, 20 February 1985, H. HERTEL 32903 (M). - Mt King William I, boulders in alpine heath, 1240 m, 28 January 1984, G. KANTVILAS 73/84 (hb. Kantvilas). - Summit of Mt Wellington, near Hobart, 1270 m, on exposed dolerite rocks, 16 January 1979, J.A. ELIX 5562 (ANUC, beside *Paraporphidia leptocarpa*).

(32) *Poeltiaria corralensis* (Räs.) Hertel

HERTEL, Beih. Nova Hedwigia 79: 431 (1984); HERTEL, Mitt. Bot. München 21: 310-312 (1985) et 23: 330 (1987); RAMBOLD, Biblioth. Lichenol. 34: 268 (1989).

Juan Fernandez (Chile): *Masatierra*: Felsen im obersten Teil des Villagratales, 10. Januar 1917, C. & I. SKOTTSBERG s.n. (UPS, det. ZAHLBRUCKNER 1924: 359-360 as "*Lecidea leucoplaca* Müll.Arg.").

New Zealand: *Canterbury*: Bank's Peninsula, along the summit trail to Mt Sinclair, on basalt rocks in dense bush, 550 m, 14 February 1980, J.A. ELIX 7135 (ANUC).

Tasmania: Little Fisher River, on ?granite on rocks in rainforest floor, 880 m, 15 February 1984, P. JAMES & G. KANTVILAS 462/84 (hb. Kantvilas).

(33) *Poeltiaria turgescens* (Koerb.) Hertel

HERTEL, Beih. Nova Hedwigia 79: 431-432 (1984); HERTEL, Mitt. Bot. München 21: 311, 326 (1985); RAMBOLD, Biblioth. Lichenol. 34: 272 (1989).

New Zealand: *Auckland*: Three Kings Islands, Great Island, Castaway Valley, 12 November 1970, D. GALLOWAY (BM). - Whananaki Beach, 35° 31' S, 173° 28' E, saxicolous on maritime rock, 15 March 1980, J.K. BARTLETT 23749 (M). - Bay of Plenty, Rurima Island, on rocks beneath *Metrosideros excelsa*, March 1984, B. & G. HAYWARD T21 (AK). - Bay of Plenty: Whale Island, camp V, on exposed rocks, no date, B. & G. HAYWARD T25 (AK).

Tasmania: Arve Loop Road, c. 27 km SW of Huonville, 43° 08'S, 146° 47'E, on quartzite, 21 December 1968, G.C. BRATT (no. 68/1461a), K.M. MACKAY et al. (HO 63743).

(34) *Poeltidea perusta* (Nyl.) Hertel & Hafellner in Hertel

HERTEL, Beih. Nova Hedwigia 79: 463 (1984); HERTEL, Mitt. Bot. München 23: 330-331 (1987); RAMBOLD, Biblioth. Lichenol. 34: 275 (1989). - *Lecidea perusta* Nyl. in CROMBIE, Journ. Bot. (London) 13: 334 (1874).

Argentina: *Tierra del Fuego*: Dept. Ushuaia, steiler Hang N Passo Garibaldi, gegenüber Lago Escondido, 400-500 m, *Nothofagus*-Wald mit großen Silikatfelsen, 10. Januar 1989, J. POELT (GZU).

New Zealand: *Canterbury*: Summit of Mt Peel, 54° 51' S, 171° 09' E, 1600-1650 m, on schistose rocks near ground, 16 January 1985, H. HERTEL 29514 (M).

Southland: Fiord Bot. Distr., alpine *Danthonia crassiuscula* belt on the ridge S of Lake Harris Saddle, on rocks, 12 February 1927, G.E. & Greta DU RIETZ 1753:18 (UPS).

(35) *Porpidia albocaerulescens* (Wulfen) Hertel & Knoph

HERTEL & KNOPH, Beih. Nova Hedwigia 79: 433-434 (1984); HERTEL, Mitt.

Bot. München 21: 327-329 (1985) and 23: 331-332 (1987); HERTEL & KNOPH, Mitt. Bot. München 20: 467-488 (1984); RAMBOLD, Biblioth. Lichenol. 34: 278 (1989).

var. albocaerulescens

New Zealand: Auckland: Three Kings Islands, Great Island, Castaway Valley, 12 November 1970, D. GALLOWAY (BM).

Nelson: Kaihoka Coast, in coastal forest near Kaihoka Lakes, 40° 33' S, 172° 36' E, 12 December 1982, J.K. BARTLETT 22883 (M). - "Nova Zelandia" (no exact locality given), 17 July 1875, Ch. KNIGHT s.n. (UPS).

var. polycarpiza (Vain.) Rambold & Hertel

RAMBOLD & HERTEL in RAMBOLD, Biblioth. Lichenol. 34: 282 (1989) - *Lecidea polycarpiza* Vain., Ann. Acad. Sci. Fenn., Ser. A, 15 (6): 136-137 (1921) - *Huilia albocaerulescens* var. *polycarpiza* (Vain.) Hertel, Herzogia 3: 373 (1975); HERTEL, Khumbu Himal 6 (3): 207-210 (1977).

Papua New Guinea: Morobe District: Vicinity of Wau, along road from Wau to summit of Mt Kaindi and Edie Creek, roadside cutbanks, on rock outcrops and landslips, often with much seepage water, on a variety of exposures, 19 June 1968, W.A. WEBER & D. McVEAN (COLO L-50522).

(36) Porpidia crustulata (Ach.) Hertel & Knoph

HERTEL & KNOPH in HERTEL, Beih. Nova Hedwigia 79: 433-434 (1984); HERTEL, Mitt. Bot. München 21: 329-330 (1985) et 23: 332-333 (1987); SCHWAB, Mitt. Bot. München 22: 380-388, 415-422 (1986); RAMBOLD, Biblioth. Lichenol. 34: 285 (1989).

Chile: Terr. Magallanes: Punta Arenas, Cerro Mina Rica, on stone in naked mineral-soil (solifluction), 550 m, 4 March 1941, R. SANTESSON 6146 (S).

New Zealand: Wellington: Maungaroa vid Wellington, July 1874, S. BERGGREN (S).

Otago: Old Man Range, summit plateau near Hyde Rock, 45° 22' S, 169° 12' E, 1670 m, stones on ground at foot of the tall tor, together with *Trapelia coarctata* and *Cetraria delisei*, 3 February 1985, H. HERTEL 30329 (M).

Tasmania: Mt Knocklofty, 23 August 1893, (probably) W.A. WEYMOUTH (NSW 155801).

(37) Porpidia stephanodes (Stirt.) Hertel

HERTEL, Beih. Nova Hedwigia 79: 436-437 (1984); HERTEL, Mitt. Bot. München 23: 333 (1987) - *Lecidea stephanodes* Stirt. in CROMBIE, Journ. Linn. Soc. Bot. London, 16: 221 (1877).

Macquarie Island: Summit of Mt Elder, on rock, 22 January 1972, R. HNATIUK 11843 (MEL 1027346), 11844 (MEL 1027342). - Mt Waite, about 45 m below the summit, on rocks, SE aspect, 375 m, at Station 8a, 4 February 1964, Ph. AITKINSON no. RF-5971 (MEL 1048263). - Mt Haswell, abundant in southerly aspect at Station 14, 335 m, 12 February 1964, R. FILSON 6036 (MEL 1048291). - NE corner of Lake Flynn, on rocks with *Andreaea*, 3 February 1964, R. FILSON 5885 (MEL 1048256). - Approx. halve way

along W side of Lake Strahan (Gratitude Lake), abundant in easterly aspect, 180 m, 4 February 1964, R. FILSON (no. 5942) & J. PHILLIPS (MEL 1041285). - Cliffs on the W side of the Island, 0.8 km S of Double Point, 3 February 1964, R. FILSON 5918 (MEL 1048282).

The above are the only localities known in addition to the type collection from Kerguelen Island. *Porpidia stephanodes* is easily recognized by its huge ascospores 40-60 x 20-26 μm (see HERTEL 1984). No lichen substances were detected by TLC in any of the specimens. The development of an epilithic thallus varies considerably. Many specimens are cryptothalline, but some show a moderately thick dirty whitish to pale milky brownish thallus.

(38) *Protoparmelia petraeoides* (Bab. & Mitt.) Hertel

HERTEL, Mitt. Bot. München 21: 330 (1985); HERTEL, Beih. Nova Hedwigia 79: 452 (1984); RAMBOLD, Biblioth. Lichenol. 34: 129 (1989).

South Africa: Cape Province: Summit plateau of Table Mt near Cape Town, 1000-1080 m, 7 June 1982, H. HERTEL 24131 (M), 25103 (M), 25130 (M). - Franschhoek Mts, Franschhoek Pass near Franschhoek (25 km E of Stellenbosch), 720-760 m, 28 May 1982, H. HERTEL 24798 (M).

New Zealand: Gisborne: East Cape, Mt Hikurangi, saxicolous on summit rocks, 1735 m, 27 December 1982, J.K. BARTLETT 24704 (M).

Nelson: Upper Cobb Valley, headwaters of Burgoo Stream, 1180 m, 16 December 1983, J.K. BARTLETT 26984 (M).

Canterbury: Lees Valley road, 7 km N of Oxford, 460 m, on greywacke rocks in open bush, 28 May 1980, J.A. ELIX 8304 (ANUC).

Otago: Alexandra, on schist rocks, 24 December 1963, W. MARTIN 6968 (CHR 407420). - Fruitlands, 12 km S of Alexandra, 45° 20' S, 169° 19' E, 460 m, 6 November 1981, V. WIRTH (no. 14064) & C.D. MEURK (STU). - Rock and Pillar Range, 1190 m, 18 September 1981, C.D. MEURK ML17 (hb. Meurk). - Old Man Range, Obelisk near Fruitlands, 45° 19' S, 169° 13' E, 1690 m, alpine *Celmisia-Raoulia* vegetation, 6 November 1981, V. WIRTH (no. 11866) & C.D. MEURK (STU). - Fiordland National Park, 5 km SE Homer Huts, Lyttles Flat, 44° 48' S, 168° 03' E, 660 m, 21 September 1981, H. MAYRHOFER 2262 (GZU).

Tasmania: Cradle Mts, Lake St. Clair National Park, on the western side of Mt Campbell, on rock outcrop overlooking Lake Dove, c. 45 m below summit, 1 March 1968, R. FILSON 10841 (MEL 1035723). - Lake St. Clair National Park, trail from Derwent Bridge toward lakes below Mt Hugel, badly burnt forest, 24 February 1968, W.A. WEBER & D. McVEAN (COLO L-49683, with *Lecanora* cf. *blanda* Nyl.). - Arm River, edge of river in wet forest, on dolerite, 440 m, 14 February 1984, P. JAMES & G. KANTVILAS 354/84 (hb. Kantvilas).

(39) *Rimularia psephota* (Tuck.) Hertel & Rambold

HERTEL, Mitt. Bot. München 23: 334 (1987); RAMBOLD, Biblioth. Lichenol. 34: 307 (1989); HERTEL & RAMBOLD (in press) - *Lecidea psephota* Tuck., Proceed. Acad. Arts Sci. 12: 181 (1877) - *Lambiella psephota* (Tuck.) Hertel, Beih. Nova Hedwigia 79: 460 (1984); HERTEL, Mitt. Bot. München 21: 317-319 (1987).

Argentina: Tierra del Fuego: Dept. Ushuaia, Estancia Moat, etwa 4 km W von Pampa de los Indios, *Nothofagus betuloides*-Wald, felsige Küste, 0-30 m, 12. Januar 1989, J. POELT (GZU, 3 collections, one of it in parasitic contact with a species of *Caloplaca*).

- Montes Martial bei Ushuaia, oberhalb Acrosilla, Silikatfelsen im Krummholzbereich, S- und SE-Hänge, 700-1000 m, 17. Januar 1989, J. POELT (GZU, 2 Proben).

Chile: *Terr. Magellanes*: Natales, Cerro Dorotea, on big boulder in a very thin forest, 9 May 1940, R. SANTESSON 2130 (S).

New Zealand: *Westland*: Mt Alack ridge, upper neve of Fox Glacier, 2550 m, site of Pioneer Hut, sheltered rock on S side below ridge crest, 11 January 1967, B.A. FINERAN 2403 (CANU). - Mt Haast, West Peak summit, summit rocks, 10 January 1967, B.A. FINERAN 2363 (CANU) and 2463 (CANU).

Canterbury: Phipps Peak, ridge to summit, 1830 m, near Arthur Pass, c. 42° 54' S, 171° E, 5 March 1966, B.A. FINERAN (CANU, beside *Lecidea lapicida*). - Cass, on boulders of greywacke in *Discaria-Festuca* tussock country above the Biological Station, 8 January 1927, G.E. & Greta DU RIETZ 1454:6 (UPS, beside *Lecidea atromorio* Knight).

- Tasman Valley, ca. 43° 07' S, 170° 13' E, on rock outcrop on ridge near Ball Hut, 8 April 1966, B.A. FINERAN 2329 (CANU), 2330 (CANU). - Kirkliston Range, 1670-1830 m, 25 March 1978, D.J. GALLOWAY s.n. (BM). - Lees Valley road, 7 km N of Oxford, 460 m, on greywacke rocks in open bush, 28 May 1980, J.A. ELIX 8304 (ANUC, beside *Protoparmelia petraeoides*).

- Bank's Peninsula, Kennedy's Bush, hill with siliceous outcrops, 43° 39' S, 172° 36' E, 200 m, 1 November 1981, V. WIRTH (no. 11804) & L. GREENFIELD (STU). - Lake Pukaki Hotel, on non-calcareous boulders in *Festuca novae-zelandiae*-tussock at the road side, 12 March 1927, G.E. & G. DU RIETZ 2094b (UPS).

Otago: Rock and Pillar Range, 1190 m, 18 September 1981, C.D. MEURK ML17 (hb. Meurk). - Old Man Range, summit plateau between Hyde Rock and Obelisk, 1670 m, 3 February 1985, H. HERTEL 30344 (M, beside *Lecidella*).

South Georgia: About 10-15 m below "Summit 706 m" due E of Swinhoe Peak above Hamburg Glacier, on block scree on S-facing slope, probably never receiving direct sunshine, 6 November 1976, R.I. LEWIS SMITH 2526 (AAS, very scanty beside *Carbonea vorticosa*, *Umbilicaria propagulifera* and *Usnea sphacelata*). - Royal Bay, above Köppen Point (GR 162 098), on dry, S-facing bird perching stone, 30 m, 25 January 1972, D.C. LINDSAY 4092 (AAS, beside *Tephromela atra* agg.).

Antarctica: *West Graham Land*: Berthelot Group, Green Island, N facing inland cliff, 18 March 1935, British Graham Land ("Penola") Expedition no. 1081k (BM).

(40) *Schaereria fuscocinerea* (Nyl.) Clauzade & Roux

CLAUZADE & ROUX, Bull. Soc. Centre-Ouest, N.S., Num. Spéc. 7: 829 (1985); RAMBOLD, Biblioth. Lichenol. 34: 310 (1989). - *Lecidea fuscocinerea* Nyl., Nya Bot. Notiser: 177 (1852). - *Schaereria tenebrosa* (Flot.) Hertel & Poelt in HAWKSWORTH, JAMES & COPPINS, Lichenologist 12: 107 (1980) - *Lecidea tenebrosa* Flot. in SCHUCHARDT, Bot. Zeitung (Berlin) 13: 146-147 (1855).

New Zealand: *Canterbury*: Bank's Peninsula, Devils Gap (between Lake Forsyth and Akaroa Harbour), 43° 49' 30" S, 172° 49' 30" E, on hard basaltic rock outcrops, E exposed, near summit, 670-710 m, 19 January 1985, H. HERTEL 29695 (M).

The species is widespread in the Northern Hemisphere. In addition to the above, all Southern Hemisphere records are from South Georgia (HERTEL 1977a) and from Australia (RAMBOLD 1989).

(41) *Sporastatia polyspora* (Nyl.) Grumm.

GRUMMANN, Catal. Lich. Germaniae: 23 (1963); HERTEL, Mitt. Bot. München 23: 334-335 (1987).

Antarctica: *East Graham Land*: Trinity Peninsula, Hope Bay, Scar Hills, 63° 25'S, 57° 01'W, 90 m, 25 September 1945, I.M. LAMB, Operation *Tabarin*, no. D 2491 (BM, a tiny thallus within a mosaic of other crustose lichens).

(42) *Sporastatia testudinea* (Ach.) Massal.

MASSALONGO, *Geneac. Lich.*: 9 (1854); MAGNUSSON, *Rabenhorsts Kryptog-Fl. 9, I. Teil*: 9-15 (1936); HERTEL, *Mitt. Bot. München 21*: 316-317 (1985) and 23: 334 (1987).

Argentina: *Tierra del Fuego*: Montes Martial bei Ushuaia, oberhalb Acrosilla, Silikatfelsen im Krummholzbereich, S- und SE-Hänge, 700-1000 m, 17. Januar 1989, J. POELT (GZU).

New Zealand: *Westland*: Mt Haast, West Peak summit, summit rocks, 10 January 1967, R.G. CUNNINGHAME (CANU, hb. FINERAN 2455).

Otago: The Remarkables, Double Cone above Lake Alta, 45° 04' S, 168° 48' E, 2280 m, exposed rocks, 5 February 1985, H. HERTEL 30443 (M, beside *Lecidea lapicida*).

South Georgia: Royal Bay, Mt Krokisius, 29 April 1902, C. SKOTTSBERG (S, det. C.W. DODGE as *Lecidea azurella* Müll.Arg.).

(43) *Stephanocyclus henssenianus* Hertel

HERTEL, *Lecideaceae exs.*, fasc. V, no. 96 (1983); HERTEL, *Beih. Nova Hedwigia 79*: 438-439 (1984); HERTEL, *Mitt. Bot. München 23*: 335 (1987).

Kerguelen Island: (no locality given), 27 December 1897 - 20 January 1898, R. HALL (MEL 11101, loose apothecia only).

Stephanocyclus henssenianus is very common on the Prince Edward Islands (which are lying 4000 km to the West) and is also known from Western Patagonia and Tasmania (HERTEL 1987a).

(44) *Tephromela atra* (Huds.) Hafellner

in KALB, *Lich. Neotrop.*, fasc. VII, no. 297 (1983); HERTEL & RAMBOLD, *Bot. Jahrb. Syst. 107*: 492-494 (1985); RAMBOLD, *Biblioth. Lichenol. 34*: 150 (1989) - *Lecanora atra* (Huds.) Ach., *Lichenogr. Univ.*: 344 (1810).

Only lecideoid/aspicilioid forms with immersed apothecia (due to a heavily eroded thallus surface), found in the herbaria under *Lecidea*, are listed here.

South Georgia: Cumberland East Bay: c. 1 km W of Mt Duse (GR 133 127), 350 m, exposed dry greywacke outcrop facing W, 23 November 1971, D.C. LINDSAY 3141 (AAS, beside *Lecidea lapicida*).

Kerguelen Island: Cliffs above Lake du Val Studer, 11 February 1963, R. FILSON 4658 (MEL 1032387).

Auckland Islands: *Auckland Island*: Mt Eden, basalt rock of summit knob, 420 m, 11 April 1980, C.D. MEURK s.n. (BM).

Macquarie Island: W of Aurora Cave, coastal rocks, 21 January 1972, R. HNATIUK 11804 (MEL 1027290). - North Lusitania Bay, on scree, 270 m, 29 December 1971, R. HNATIUK 11592 (MEL 1027328).

(45) *Trapelia coarctata* (Sm.) Choisy

CHOISY in WERNER, Bull. Soc. Sci. Nat. Maroc, 12: 160 (1932); HERTEL, Beih. Nova Hedwigia, 79: 457 (1984).

Papua New Guinea: *Morobe Province*: Road 4,6 km SW of Bulolo, 7° 14' S, 146° 36' E, 1000 m, large boulder in regrowth at edge of *Auracaria* plantation, 16 January 1983, H. STREIMANN 33459 (BGC).

New Zealand: *Auckland*: Hokianga, 1874, S. BERGGREN (S; already included in HELLBOM 1896: 104). - Omatangi, c. 600 m, 1874, S. BERGGREN (S; already included in HELLBOM 1896: 104). - Coromandel, IX.1874, D. BERGGREN (S; already included in HELLBOM 1896: 104).

Canterbury: Torlesse Range, Foggy Peak above Porter's Pass (between Cass and Springfield), 43° 18' S, 171° 45' E, ± 1250 m, sandstone pebbles partly imbedded into ground, 22 January 1985, H. HERTEL 29743 (M). - Mt Peel, Lynn Stream Valley, Long Speer above Acland's Hut, 43° 50' 30" S, 171° 11' E, 950 m, 15 January 1985, H. HERTEL 29463 (M, beside *Trapelia involuta*). - Dunedin, V.1874, S. BERGGREN (S; already included in HELLBOM 1896: 104).

Otago: Old Man Range, summit plateau near Hyde Rock, 45° 22' S, 169° 12' E, 1670 m, stones on ground at foot of the tall tor, together with *Porpidia crustulata* and *Cetraria delisei*, 3 February 1985, H. HERTEL 30329 (M).

Southland: "Springfield", Otikerama, 215 m, on rock bluff, 27 February 1984, C.D. MEURK ML7 (hb. Meurk). - Street Manapouri - Clifden, c. 3 km N of Blackmount Pass, 45° 44' S, 167° 37' E, pebbles loose on ground of a road cutting, 11 February 1985, H. HERTEL 30752 (M).

Tasmania: Moonah, 67 Sinclair Avenue, 42° 51' S, 147° 18' E, on dolerite, exposed and rare, 27 July 1968, G.C. BRATT 68/572 (HO 63807). - Murchison Highway, 1.6 km N of Que River, 41° 33' S, 145° 44' E, 7 April 1969, G.C. BRATT 69/261 (HO 63746). - "Tasmania" (without exact locality), FITZGERALD (NSW 155800).

(46) *Trapelia involuta* (Th. Tayl. in Mackay) Hertel

HERTEL, Herzogia 2: 508-513 (1973); HERTEL, Khumbu Himal 6 (3): 346-347 (1977). - *Lecanora involuta* Th. Tayl in MACKAY, Flora Hibernica : 134-135 (1836).

New Zealand: *Auckland*: Thames Co., Slipper Island, on clay bank, July 1973, B.W. HAYWARD H49.145 (AK).

Canterbury: Mt Peel, Lynn Stream Valley, Long Speer above Acland's Hut, 43° 50' 30" S, 171° 11' E, 950 m, 15 January 1985, H. HERTEL 29463 (M, beside *Trapelia coarctata*).

This specimen has a tiny, clearly lobulate thallus containing gyrophoric acid. *Trapelia involuta* is well known from Europe and North America (HERTEL 1973) and has been reported also from East Africa (HERTEL 1975) and Indonesia (HERTEL 1977a). It is a new record for Australasia.

(47) *Trapelia mooreana* (Carroll) P. James

P. JAMES in HERTEL, Herzogia 3: 405-406 (1975); HERTEL, Khumbu Himal 6 (3): 347-349 (1977); HERTEL, Mitt. Bot. München 23: 335-337 (1987) - *Lecidea mooreana* Carroll, Nat. Hist. Rev. 6: 529 (1859).

Tasmania: C. 2 km NW of Trial Harbour, 41° 55' S, 145° 11' E, on roadside gravels and pebbles in buttongrass moorland, 200 m, 6 April 1989, G. KANTVILAS 143/89 (M, dupl. ex HO).

This is a second record of this widely distributed species (see distribution map in HERTEL 1987b p. 337) for Australasia.

(48) *Tremolecia atrata* (Ach.) Hertel

HERTEL, Khumbu Himal 6 (3): 351-353 (1977); HERTEL, Beih. Nova Hedwigia 79: 458 (1984); HERTEL, Mitt. Bot. München 21: 335-336 (1985) and 23: 337 (1987); SCHWAB, Mitt. Bot. München 22: 441-453 (1986); RAMBOLD, Biblioth. Lichenol. 34: 316 (1989) - *Lecidea atrata* (Ach.) Wahlenb., Fl. Lappon.: 475 (1812); HERTEL, Herzogia 2: 483 (1973).

Colombia: Depto. de Valle: Farallones de Cali (Pacific Range of the Andes on the inland side), 3° 20' N, 76° 42' W, 3750 m, montane-subalpine rain forest, on exposed summit of mountain, 24 January 1976, D. HARTMAN 336 (COLO L-83469).

Argentina: Tierra del Fuego: Dept. Ushuaia, Montes Martial bei Ushuaia, oberhalb Acrosilla, alpine Heiden, Silikatfelsen im Krummholzbereich, S- und SE-Hänge, 700-1000 m, 17. Januar 1989, J. POELT (GZU).

Uganda: Distr. Toro: Central summit group of Mt Ruwenzori, 4480 m, on rocks, April 1984, K. SCHMITT (M).

Tasmania: Mt Wellington, on dolerite, alpine rocks, 1260 m, 10 February 1984, P. JAMES & G. KANTVILAS 301/84 (hb. Kantvilas). - Cradle Mountains, Lake St. Clair National Park, Mt Rufus, 42° 07' S, 146° 06' E, W of Derwent Bridge, c. 1320 m, an Außenkantenfläche eines großen, harten, freistehenden Felsbockes, 20. Februar 1985, H. HERTEL 32914 (M, sub *Rimularia psephota*).

South Georgia: About 10-15 m below "Summit 706 m" due E of Swinhoe Peak above Hamburg Glacier, on block scree on S-facing slope, probably never receiving direct sunshine, 6 November 1976, R.I. LEWIS SMITH 2525 (AAS). - Cumberland East Bay: Hope Point (GR 133 124), on moderately sheltered dry, non-nitrogenous greywacke outcrop facing S, 50 m, 24 November 1971, D.C. LINDSAY 3187 (AAS, beside *Lecidea lapicida*). - Royal Bay: near waterfall on SW side of Whale Valley (GR 158 098), on dry non-nitrogenous boulder, 30 m, 17 January 1972, D.C. LINDSAY 3945 (AAS, beside *Lecidea* sp.).

South Shetland Islands: King George Island: N side of Barton Peninsula, 62° 13' S, 58° 44' W, 3 m, on pebbles of raised beach, 22 January 1966, D.C. LINDSAY 736 (AAS).

Antarctica: East Graham Land: Trinity Peninsula, Hope Bay, N flank of Mt Flora, 300 m, 6 January 1949, I.M. LAMB, Operation *Tabarin*, no. 2854 (BM). - Summit ridge of Mt Flora, 520 m, 5 January 1945, D. JAMES & V. RUSSELL, Operation *Tabarin*, no. 2859 (BM). - Hope Bay, low hill on E. side of bay, 100 m, on loose stone, 16 April 1945, I.M. LAMB, Operation *Tabarin*, no. 2376 (BM), no. 2389 (BM). - Hope Bay, from a moraine between two ridges N of Mt Bransfield, 180 m, 10 October 1946, A. REECE, Falkland Island Dependencies Survey no. D-355-5 (BM). - Nobby Nunatak, south side of Hope Bay, 270 m, small boulder in shelter of larger ones, 15 January 1960, C.G. BRADING 216a (AAS).

West Graham Land: Argentine Islands: Galindez Island, 65° 15' S, 64° 15' W, from typical boulder area, just uncovered by snow melt, 27 December 1935, British Graham Land ("Penola") Expedition 1934-37, no. 1328r (BM).

(49) *Tylothallia pahiensis* (Zahlbr.) Hertel & Kilius

HERTEL, Mitt. Bot. München 23: 337-338 (1987); RAMBOLD, Biblioth. Lichenol.

34: 155 (1989).

New Zealand: North Auckland: 17.5 km ENE of Warkworth, Tawharanui Peninsula, 3.5 km W of Tokatu Pt., 36° 22' S, 174° 50' E, on sea-shore rocks, 25 May 1981, L. TIBELL 13191 (UPS, beside *Lecanora subcoarctata*).

Southland: Southern shore of Bluff Peninsula, boulders in the lowest aerohyaline belt, 26 March 1927, Greta DU RIETZ 3007:6 (UPS), 3007:4 (UPS). - Howells Point near Riverton, 46° 23' S, 168° 02' E, coastal rocks, 11 February 1985, H. MAYRHOFER (no. 7269) & H. HERTEL (GZU).

Tasmania: Flinders Island, 4 km W of Emita, 17 April 1965, R. FILSON 7109 (MEL 564158). - Lune River Lagoon Mouth, 43° 26' S, 146° 54' E, 6 July 1968, G.C. BRATT 68/522 (HO 65308, beside *Paraporpidia leptocarpa*). - Tasman Peninsula, coastal heath between Safety Cove and Crescent Bay near Standup Point, S of Port Arthur, 43° 12' S, 147° 52' E, c. 5 m, 24 October 1981, H. MAYRHOFER 3353 (GZU). - Blackmans Bay near Kingston, S of Hobart, 43° 00' 40" S, 147° 19' 30" E, Flowerpot Point SE of Blackmans Beach, coastal rocks, dolerite, 19 February 1985, H. MAYRHOFER (no. 7297) & H. HERTEL (GZU, Mayrhofer), 7310 (GZU), 7312 (GZU). - Coastal rocks between Shelly Point and Buxton Point, S of Swansea, 42° 14' S, 148° 01' E, 18 February 1985, H. MAYRHOFER (no. 7325) & H. HERTEL (Mayrhofer).

(50) *Xenolecia spadicomma* (Nyl. in Cromb.) Hertel

HERTEL, Beih. Nova Hedwigia 79: 440 (1984). - *Lecidea spadicomma* Nyl. in Crombie, Journ. Linn. Soc. London, Bot. 15: 233 (1876).

Argentina: Prov. Chubut: Lago Menendez, lado oeste, en piedras en la orilla del lago, por cierto sumergidas en épocas de mucha agua, 6 February 1950, I.M. LAMB 5948 (UPS).

This is a second record of this species, described from Isla Wellington in southern Chile.

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